LONGHORN ARMY AMMUNITION PLANT KARNACK, TEXAS

ADMINISTRATIVE RECORD

Volume 1

2022

Bate Stamp Numbers
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Longhorn Army Ammunition Plant

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LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS
ADMINISTRATIVE RECORD – CHRONOLOGICAL INDEX

VOLUME 1

2022

A. Title: Minutes – Final Monthly Managers' Meeting (MMM), Longhorn Army Ammunition Plant (LHAAP), December 15, 2021
Author(s): Department of the Army
Recipient: All Parties
Date: January 12, 2022
Bate Stamp: 01071303 – 01071330

B. Title: Minutes – Final Minutes, Quarterly Restoration Advisory Board (RAB) Meeting Longhorn Army Ammunition Plant (LHAAP), October 20, 2021
Author(s): Bhate Environmental Associates, Inc.
Recipient: All Parties
Date: January 20, 2022
Bate Stamp: 01071331 – 01071396

C. Title: Data – Surface Water Data Transmittal – 2021, Longhorn Army Ammunition Plant, Karnack, TX
Author(s): Department of the Army
Recipient: Texas Commission on Environmental Quality
Date: January 20, 2022
Bate Stamp: 01071397 – 01071603

D. Title: Report – Draft Final Year 7 Annual Remedial Action Operation Report (September 2020 – August 2021), LHAAP-35A (58) Shops Area, Longhorn Army Ammunition Plant, Karnack, Texas, January 2022
Author(s): Department of the Army
Recipient: U.S. Environmental Protection Agency and Texas Commission on Environmental Quality
Date: January 25, 2022
Bate Stamp: 01071604 – 01072499

E. Title: Report – Final Fourth Annual Remedial Action Operation Report, LHAAP-35B (37) (Chemical Laboratory), Longhorn Army Ammunition Plant, Karnack, Texas, February 2022
Author(s): Department of the Army
Recipient: U.S. Environmental Protection Agency and Texas Commission on Environmental Quality
Date: January 25, 2022
Bate Stamp: 01072500 – 01072848

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VOLUME 1 (Cont.)

2022

F.	Title:	(Cont.) Report – Appendix C Level II to Draft Final Fourth Annual Remedial Action Operation Report, LHAAP-35B (37) (Chemical Laboratory), Longhorn Army Ammunition Plant, Karnack, Texas, January 2022
	Author(s):	Department of the Army
	Recipient:	U.S. Environmental Protection Agency and Texas Commission on Environmental Quality
	Date:	January 25, 2022
	Bate Stamp:	01072849 – 01073090

Subject: **Final Monthly Managers' Meeting (MMM), Longhorn Army Ammunition Plant (LHAAP)**
Location of Meeting: **Teleconference**
Date of Meeting: **15 December 2021– 11:00 AM Central Daylight Time (CDT)**

Attendees:

Army BRAC:	Rose M. Zeiler (RMZ)
USEPA:	Brian Follin (BF)
TCEQ:	April Palmie (AP)
USACE:	Aaron Williams (AW) and Chelsea Montoya
AEC:	Lena Sierocinski and Ana Nieves
Bhate:	Kim Nemmers (KN) and Zack Beck (ZB)
APTIM:	William Foss (WF)
TLI:	Kyra Donnell (KD), Brian Gentry, and Paul Chang (PC)
HDR:	Phil Werner (PW)
USFWS:	Paul Bruckwicki (PB)

Defense Environmental Restoration Program (DERP) Performance-Based Remediation (PBR) Update

- No action items to discuss.

Groundwater Treatment Plant (GWTP) – ZB provided an update on the GWTP improvements/repairs. ZB said that no major repairs have occurred over the past month since the previous MMM. ZB summarized the pipe rupture that occurred on 15 November 2021. He explained that the rupture occurred on the polyvinyl chloride (PVC) pipe coming out of the air stripper feed tank. ZB said that the pipe repair was successful. The GWTP has been operating properly since the repair was made. ZB said that the bayou has had little to no flow recently; as a result, treated water is being discharged to the INF pond. ZB stated that effluent is pumped through the ion exchange (IX) vessels prior to discharge to the INF pond. ZB said that the GWTP had been operated in a batch mode with perchlorate sampling of the treated water and discharge following receipt of acceptable effluent results. However, with confirmation that IX treatment is resulting non-detect effluent results, the GWTP will be operated continuously without waiting on analytical results prior to discharge to the INF pond. Weekly perchlorate samples between the IX vessels will continue to confirm the perchlorate detections remain non-detect. KN added that there has been some precipitation recently. KN explained that the amount of precipitation has not resulted in flow in the bayou due to the presence of debris. To overcome the debris, a larger rain event is necessary to get flow in the bayou.

Field Work – ZB said that sampling at sites LHAAP-58 and LHAAP-18/24 was recently completed in December 2021. WF said that sampling at LHAAP-12 is being performed currently. WF stated that the Scrud Remover™ Part B is being added weekly to wells 16EW05, 16EW06, and 16EW07.

KN asked everyone to refer to the Document and Issues (DI) Tracking Table dated 15 December 2021.

- **Task 1** (Project Management) – KN said that the November 2021 MMM were issued Draft on 1 December 2021 and issued Final on 3 December 2021. KN said the Restoration Advisory Board (RAB) meeting is planned for 19 January 2022 at the Karnack Community Center, and the public notices are going out to interested members of the public. KN said that the RAB slides will be provided to Texas Commission on Environmental Quality (TCEQ) and United States Environmental Protection Agency (USEPA) for review ahead of the meeting. AP requested that the RAB meetings be reduced from four times per year to

three times year. AP pointed out that this would result in only one extra month between meetings but result in a 25 percent reduction in travel expense, which is significant. AP proposed meetings in February, June, and October. AW indicated that travel for United States Army Corps of Engineers (USACE) in October is difficult as labor funds are rarely available at that time. AP suggested moving the October meeting to November as an alternative. RMZ said that altering the number of RAB meetings would result in necessary updates to the Community Relations Plan and possibly the RAB charter. BF said that USEPA doesn't object to the meeting reduction request. RMZ agreed with adding the meeting reduction request to the RAB agenda once we decide on specific dates for the revised meetings. KN said that she would note the action item of adding the RAB meeting reduction request to the RAB agenda.

- **Task 4** (LHAAP-04) – WF stated that the Year 2 Quarter 4 performance groundwater sampling was completed in November 2021. Pending laboratory results, the validated data for the event will be presented in the January 2022 MMM. WF stated that the laboratory is experiencing delays, which could push the validated data submittal to the February 2022 MMM. WF stated that the LHAAP-04 Remedial Action Completion Report (RACR) and Year 1 Remedial Action – Operation (RA-O) Report are both finalized and will be placed in the administrative record (AR).
- **Task 5** (LHAAP-12) – WF said that the annual sampling event at LHAAP-12 is currently being completed. The validated data for the December 2021 event may be presented in the January 2022 MMM package. However, since the sampling is occurring later in the month, it is more likely to be presented in February 2022. WF stated that the 2020 Annual RA-O Report has been placed into the AR.
- **Task 6** (LHAAP-16) – WF stated that the Year 2 Quarter 3 groundwater sampling was completed in October 2021. WF presented the Year 2 Quarter 3 validated groundwater results. WF stated that there appears to be a seasonal pattern in contaminant fluctuations, similar to what was observed in Year 1. WF discussed the trichloroethene (TCE) to dichloroethene (DCE) ratios. WF stated that in nearly every instance the TCE/DCE ratio was decreasing. The decreasing TCE/DCE ratio is an indication of TCE degradation despite the fluctuations in absolute concentrations. WF stated that overall there is relatively good results, although there are some areas of LHAAP-16 where oxidation reduction potential (ORP) and dissolved oxygen (DO) readings are not currently optimal for continued degradation of contaminants. AP asked why the laboratory had to perform a dilution of the samples from 16EW05 and 16EW06. WF explained that these wells are where the Scrud Remover™ has been used. As a result, the groundwater in these wells has an oily texture due to residual emulsified vegetable oil (EVO) and the Scrud Remover™ product. WF said that the Year 1 RA-O Report (submitted to the Regulators on 27 October 2021) regulatory review period has been extended to 14 January 2022.
- **Task 9** (LHAAP-37) – WF said that response to the USEPA comments on the Year 4 RA-O Report are in progress. WF said that the Year 5 semi-annual RA-O sampling event was completed in November 2021. The validated data for the event will be presented in the January 2022 MMM package.
- **Task 10** (LHAAP-46) – WF said that TCEQ comments on the Year 7 RA-O Report have been received. WF said the regulatory review period has been extended to 17 December 2021.
- **Task 11** (LHAAP-50) **–** WF stated the Year 2 Quarter 2 sampling was completed in October 2021 and presented the validated data. WF said that previous trends have been trending in a good direction for wells 50WW11, 50WW13, and 50WW14. He noted that 50WW12 has had elevated perchlorate. In the Year 2 Quarter 2, well 50WW12 had detected perchlorate

decrease but increases were observed at 50WW11, 50WW13, and 50WW14. WF said that further evaluation will be necessary to determine if these are seasonal fluctuations. Additionally, ORP and DO are not trending in the right direction for continued reduction of contaminants. The Year 7 RA-O Report was submitted on 9 December 2021, and the regulatory review period was extended to 31 January 2022.

- **Task 12** (LHAAP-58) – KN stated that the Year 7 Annual RA-O Report was submitted to the Regulators in October 2021, and the regulatory review period has been extended to Monday, 20 December 2021. KN stated that the western plume semi-annual sampling event was completed in December 2021. KN added that the validated results were anticipated to be available for the January 2022 MMM.
- **Task 13** (LHAAP-67) – WF stated that the Draft Final Year 7 RA-O Report has been posted to the AR. WF stated that the Year 8 Annual RA-O sampling was completed in November 2021 and that the validated data should be available for the January 2022 MMM.
- **Task 14** (LHAAP-001-R and –003-R) – KN said no activities were ongoing for this task, and that inspections at each site will be completed in early 2022.
- **Task 16** (GWTP) **–** KN said that the 3rd Quarter GWTP Report was submitted 14 December 2021.
- **Task 17** (LHAAP-18/24) – KN said that the semi-annual sampling event was recently completed in December 2021, and that the data will be included with the February 2022 MMM validated data.
- **Task 18** (Surface Water) – KN said that the fourth quarter sampling event has not occurred due to no flow in the bayou. KN said that the bayou flow is being monitored and surface water samples would be collected between now and the end of 2021 if there is flow. KN added that if no flow is observed before the end of the year, the next sampling event would be during the first quarter of 2022.
- **Task 19:** (2021 Land Use Control [LUC] Management Plan) – KN said that the 2021 LUC Management Plan is under review by the Regulators and requested signatures if the revisions are acceptable.
- **Administrative Record (AR) –** WF said that the April through June 2021 AR hardcopies have been shipped to LHAAP and compact disc copies have been received at the library in Marshall, Texas. WF said they are also compiling the August – September 2021 AR documents.
  WF clarified in response to a recent email from the Army that while draft and draft final documents are in regulatory review, they are in the "Documents" folder of the SharePoint portal under the regulatory tab. Once they are finalized they are moved to an "Approved Documents" folder within the "Documents" folder to avoid cluttering the list of documents requiring regulatory review.

Update on other DERP Sites:

- **LHAAP 18/24 –** PW stated that the Draft Pre-Design Investigation (PDI) Report regulatory review period was extended to 24 January 2022. PW added that the extension will push out the submittal of the 60 percent (%) Remedial Design (RD) to May 2022. PW stated that the 30% RD is under preparation now.
- **LHAAP-29** – PW said that the second set of analytical data results (88 samples) from the LHAAP-29 PDI have been validated and an evaluation has been completed. PW stated that a summary of the results will tentatively be submitted to the Regulators in January 2022.
- **LHAAP-47** – PW said that comments from TCEQ on the Revised Draft Record of Decision (ROD) were received on 15 November 2021. The response to TCEQ comments is currently under Army review. (*Note that USEPA comments to the Revised Draft ROD were received*

prior to the December 2021 MMM on 9 December 2021and responses to USEPA comments are being drafted). PW stated that the Army notified regulators that a 20-day extension would be necessary for responding to regulatory comments. The RTCs will be due on 31 January 2022.

- **LHAAP-17** - KD provided a summary and an update to the LHAAP-17 field work to date. KD stated that the LHAAP-17 team began mobilization for field work following Uniform Federal Policy-Quality Assurance Project Plan approval of October 4, 2021. KD explained that there are 6 areas that required further excavation when the work stoppage occurred (Area H, J, K, L, M and N). KD stated that there has been ancillary work activities also conducted including a survey of the site boundaries, vegetation removal as needed, sampling and approval of backfill sources, and pumping of standing water from excavations. KD explained that the standing water present in most of the excavations was a significant issue to move forward with excavation activities. Standing storm water below the perchlorate Protective Concentration Level (PCL) (17 micrograms per liter [µg/L]) was pumped north of the site where it was released to ground in a controlled manner to mitigate overland flow. Standing water from Area H, which was the only area with PCL exceedances during pre-mobilization sampling (perchlorate slightly exceeded the PCL) was managed separately. Standing water from Area H was pumped at 1-foot intervals and sampled in between discharges to confirm perchlorate concentrations below the PCL before discharge. During the last two pumping events, water exceeded the PCL and was contained and discharged to the GWTP.

  KD discussed the sifting of the existing soil piles. All existing soil piles have been sifted (total of 1,505 cubic yards [CY] as of 10 December 2021) and staged for off-site disposal. KD stated that the total sifted soil that has been exported for offsite disposal to date is 624 CY.

  KD stated that excavation is on-going in Areas H, L, M, N and K. KD explained that Area J will be excavated last since it is in the center of the site, and excavation in the area would restrict site access. KD stated that a total of over 2,873 CY has been over-excavated as of 10 December 2021. KD stated that over-excavation is planned for all required sidewalls and floors per the work plan until explosives constituents of interest are below the required criteria. Due to the inability to pinpoint the location of munitions of explosive concern (MEC) discoveries within excavations because of limited visibility with remote/robotic excavation methods, perchlorate has been added to the list of confirmation sample analytes. KD stated that in at least one location (western portion of the south wall of Area H), explosives constituents have been demonstrated below the Industrial Use Based on Groundwater Protection (GWP-Ind) medium-specific concentrations (MSCs) for soil but perchlorate was over the GWP-Ind MSC. KD explained that over excavation has been completed due to the presence of perchlorate over the GWP-Ind MSC and the confirmation sample has been submitted. Excavations along this western portion of the south sidewall of Area H will be considered complete when perchlorate concentrations are below the GWP-Ind MSC. Explosives constituents are not planned to be resampled since they are already confirmed to be below the GWP-Ind MSC. Once the perchlorate results are confirmed to be below the GWP-Ind MSC, the validated explosives constituents and perchlorate sample results will be submitted for regulatory acceptance prior to backfilling. KD asked if there was any questions or concerns with this approach and received none.

  KD presented the sifting process. KD explained that soils are required to be dried and lime added to facilitate sifting. Excavation and sifting may occur concurrently though space limitations are a primary determining factor related to sequencing of activities. KD stated

that in addition to the previously stockpiled soil, a total of over 2,100 CY of newly excavated soils have been sifted as of 10 December 2021.

KD explained that laboratory turn-around times are slower than anticipated and will contribute to delays in over excavation and confirmation sampling. The laboratory delays result in the sift plant running out of soils to sift. KD stated that ideally backfilling of a portion of area H would occur the week between the holidays. The outstanding confirmation sample for the western portion of the south wall of Area H (above) will not interfere with backfilling the northwestern portion of Area H.

KD stated that Asbestos Containing Materials (ACM) have been uncovered in Areas K and L and has been determined to be non-friable. Soils containing ACM are segregated from other soils and sifted separately. KD explained that the soils containing ACM will be sent to the same landfill as non-ACM containing soils, but are manifested, received, and placed at the landfill separately. KD said that, given the location of Area J between Areas K and L, it is likely that ACM will also be uncovered in Area J.

KD stated that to date as of 10 December 2021, 9,777 pounds (lbs) of Munitions Debris have been verified, and 29,138 lbs of Non-Munitions Related Debris has been inspected and segregated. A total of 27 individual MEC items (totaling 2.42 lbs Net Explosives Weight). KD said that the MEC items are being accumulated in an alcohol, tobacco, and firearms (ATF) Type II magazine for future disposal by detonation on site. The 27 individual MEC include the following:

1. Twelve items were identified in drums of previously segregated material potentially presenting explosive hazard (MPPEH);
2. Four items were recovered from the existing soil piles from prior to the work stoppage;
3. Eight items have been recovered from excavated soils from Areas L, M and N; and
4. Two items were recovered last week from Area H. KD stated that the most likely areas to find additional munition items are in Areas M and N. PC explained that there is a burn pit in the northeast corner of Area M that may extend up to the south end of Area L.

KD stated that a buried explosive module with be utilized for the planned detonations. KD stated that, depending on the total net explosive weight, one option will be to conduct multiple smaller detonations to mitigate noise.

AP asked about the geophysical surface survey results. KD explained that the sequencing of events has been changed slightly. Excavation, offsite disposal of sifted soil, and backfill activities will be completed ahead of the geophysical surface survey. KD stated that this will allow the geophysical surface survey to be completed safely and cover the whole area and not just cover a limited footprint. AW stated that the excavation activities are estimated to be completed in mid-January 2022, which would allow the geophysical survey to begin in February 2022.

Transfer Update: RMZ and PB said that they had nothing to add at this time.

Schedule Next Managers' Meeting: The next MMM will be held on Wednesday, 19 January 2022 at 10:00 am CST at the LHAAP trailer. For those unable to attend in person, the same conference call number will be available.

Meeting concluded at approximately 12:04 pm CDT.

ACRONYM LIST

%	percent
ACM	Asbestos Containing Material
AP	April Palmie
APTIM	APTIM Federal Services, LLC
AR	Administrative Record
ATF	Alcohol, Tobacco and Firearms
AW	Aaron Williams
BF	Brian Follin
Bhate	Bhate Environmental Associates, Inc.
BRAC	Base Realignment and Closure
CST	Central Standard Time
CY	Cubic Yards
DCE	Dichloroethene
DERP	Defense Environmental Restoration Program
DI	Documents and Issues
DO	Dissolved oxygen
EVO	Emulsified Vegetable Oil
GWP-Ind	Industrial Use Based on Groundwater Protection
GWTP	Groundwater Treatment Plant
IX	Ion Exchange
KN	Kim Nemmers
LHAAP	Longhorn Army Ammunition Plant
LUC	Land use control
µg/L	mircrograms per liter
MEC	Munitions of Explosive Concern
MMM	Monthly Managers' Meeting
MPPEH	Material Potentially Presenting Explosive Hazard
MSC	Medium Specific Concentration (Soil)
ORP	Oxidation Reduction Potential
lbs	pounds
PBR	Performance-Based Remediation
PC	Paul Chang
PCL	Protective Concentration Level
PDI	Pre-Design Investigation
PVC	polyvinyl chloride
PW	Phil Werner
RAB	Restoration Advisory Board
RA-O	Remedial Action – Operation
RD	Remedial Design
RMZ	Rose M. Zeiler
ROD	Record of Decision
TCE	Trichloroethene
TCEQ	Texas Commission on Environmental Quality
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
USFWS	United Fish and Wildlife Service
WF	William (Bill) Foss
ZB	Zack Beck

LHAAP Validated Data Packages for
December 2021 Monthly Manager's Meeting

LHAAP Area	Analytical Method
LHAAP-16	*Remedial Action Operation Monitoring (Year 2, Quarter 3) - October 2021* Volatile Organic Compounds (SW8260C) Perchlorate (SW6850) Dissolved Gases (RSK-175) Bromide (SW9056A) Total Organic Carbon (SM5310B) Dechlorinating Bacteria (Census) Field Measurements (Dissolved Oxygen, Oxidation Reduction Potential, and pH)
LHAAP-50	*Remedial Action Operation Monitoring (Year 2, Quarter 2)- October 2021* Volatile Organic Compounds (SW8260C) Perchlorate (SW6850) Alkalinity (SM2320B) Chloride, Nitrate, Nitrite, and Sulfate (SW9056A) Total Organic Carbon (SM5310B) Field Measurements (Dissolved Oxygen, Oxidation Reduction Potential, Ferrous Iron, and pH)
GWTP Effluent	*Weekly Perchlorate Sampling – November 2021* Perchlorate (SW6850)
GWTP Effluent	*Weekly, Bi-Weekly, and Monthly Sampling – November 2021* Ammonia (EPA 350.3) Ortho-Phosphate (EPA 365.3) Total Organic Carbon (EPA 415.1) VOC (SW8260C) Metals (SW6020A) Hexavalent Chromium (SW7196A) 1,4-Dioxane (SW8270D-SIM) Anions (SW9056A)
GWTP Influent	*Monthly Sampling – November 2021* Metals (SW6020A) Perchlorate (SW6850) Hexavalent Chromium (SW7196A)

Landfill 16 (LHAAP-16) Remedial Action Operation Monitoring
Year 2, Quarter 3

		Injection Area	Landfill Biobarrier #1													
		Location Code	16IW09		16RW01		16RW02		16RW04		16RW05		16WW26		16WW42	
		Sample ID	16IW09-211020		16RW01-211026		16RW02-211013		16RW04-211020		16RW05-211018		16WW26-211014		16WW42-211026	
		Sample Date	10/20/2021		10/26/2021		10/13/2021		10/20/2021		10/18/2021		10/14/2021		10/26/2021	
		Sample Type	REG		REG		REG		REG		REG		REG		REG	
		Sample Purpose	Performance Data Within Landfill Biobarrier #1; Shallow Zone		Upgradient Well for Landfill Biobarrier #1; Shallow Zone		Upgradient Well for Landfill Biobarrier #1; Shallow Zone		Downgradient Well for Landfill Biobarrier #1; Shallow Zone		Downgradient Well for Landfill Biobarrier #1; Shallow Zone		Downgradient Well for Landfill Biobarrier #1; Shallow Zone		Downgradient Well for Landfill Biobarrier #1; Shallow Zone	
Analyte	**Units**	**MCL/PCL/UTL [a]**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	NA		NA		NA		NA		NA		26.4		NA	
Field Measurements																
Dissolved oxygen	mg/L	NV	0.2		0.63		0.24		0.24		0.11		0.48		0.31	
Oxidation Reduction Potential	mV	NV	-3		311		257		220		-43		243		82	
pH	SU	NV	6.15		4.97		4.84		4.7		6.73		4.49		5.7	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	< 0.5	U	NA		NA		NA		NA		< 0.5	U	< 0.5	U
Ethylene	µg/L	NV	< 0.5	UJ	NA		NA		NA		NA		2.18	J	< 0.5	U
Methane	µg/L	NV	2540	J	NA		NA		NA		NA		5.49		12.1	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	774		NA		NA		NA		NA		24.3		NA	
Bromide	mg/L	NV	3.89		NA		NA		NA		NA		< 0.1	U	NA	
Nitrate	mg/L	NV	< 0.1	U	NA		NA		NA		NA		< 0.1	U	NA	
Sulfate	mg/L	NV	1.34		NA		NA		NA		NA		342		NA	
Total organic carbon	mg/L	NV	140		NA		NA		NA		NA		4.31		6.91	J
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	< 0.2	U	< 0.2	U	< 0.2	U	< 0.2	U	< 0.2	U	< 0.2	U	< 0.2	U
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 1	U	< 5	U	< 1	U	< 10	U	< 1	U	< 1	U	< 10	U
1,1-Dichloroethene	µg/L	7	< 0.5	U	< 2.5	U	< 0.5	U	< 5	U	< 0.5	U	0.77	J	< 5	U
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 2.5	U	< 0.5	U	< 5	U	< 0.5	U	< 0.5	U	< 5	U
cis-1,2-Dichloroethene	µg/L	70	3.5		**81**		0.8	J	**88**		< 0.5	U	36		**980**	
Methylene chloride	µg/L	5	< 1	U	< 5	U	< 1	U	< 10	U	< 1	U	< 1	U	< 10	U
Trichloroethene	µg/L	5	0.99	J	**2200**		2.7		**1600**		< 0.5	U	**500**		**180**	
Vinyl chloride	µg/L	2	< 0.5	U	**2.3**	J	< 0.5	U	< 5	U	< 0.5	U	< 0.5	U	< 5	U

Landfill 16 (LHAAP-16) Remedial Action Operation Monitoring
Year 2, Quarter 3

			Injection Area		Landfill Biobarrier #2													
			Location Code		16IW03		16PM02		16PM03				16PM06		16PM09		16PM14		16WW36	
			Sample ID		16IW03-211021		16PM02-211025		16PM03-211025		16PM03-211025-FD		16PM06-211026		16PM09-211026		16PM14-211026		16WW36-211013	
			Sample Date		10/21/2021		10/25/2021		10/25/2021		10/25/2021		10/26/2021		10/26/2021		10/26/2021		10/13/2021	
			Sample Type		REG		REG		REG		FD		REG		REG		REG		REG	
			Sample Purpose		Performance Data Within Landfill Biobarrier #2; Shallow Zone		Upgradient Well for Landfill Biobarrier #2; Shallow Zone		Upgradient Well for Landfill Biobarrier #2; Shallow Zone				Downgradient Well for Landfill Biobarrier #2; Shallow Zone		Downgradient Well for Landfill Biobarrier #2; Shallow Zone		Downgradient Well for Landfill Biobarrier #2; Shallow Zone		Downgradient Well for Landfill Biobarrier #2; Shallow Zone	
Analyte	**Units**	**MCL/PCL/UTL [a]**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**
Dechlorinating Bacteria (Census)																				
Dehalococcoides	cells/mL	NV	NA		NA		NA		NA		NA		NA		NA		NA		1020	
Field Measurements																				
Dissolved oxygen	mg/L	NV	0.18		0.23		0.15		0.15		0.22		0.14		0.26		0.19			
Oxidation Reduction Potential	mV	NV	19		97		112		112		43		185		151		149			
pH	SU	NV	5.13		5.64		5.97		5.97		5.81		5.36		6		5.65			
Dissolved Gases (RSK-175)																				
Ethane	µg/L	NV	< 0.5	U	NA		NA		NA		NA		NA		NA		< 0.5	U		
Ethylene	µg/L	NV	714	J	NA		NA		NA		NA		NA		NA		2.54			
Methane	µg/L	NV	1740	J	NA		NA		NA		NA		NA		NA		65.7			
General Chemistry (2320B/SM5310B/SW9056A)																				
Alkalinity	mg/L	NV	1510		NA		NA		NA		NA		NA		NA		482			
Bromide	mg/L	NV	3.1		NA		NA		NA		NA		NA		NA		< 0.5	U		
Nitrate	mg/L	NV	< 0.5	U	NA		NA		NA		NA		NA		NA		< 0.5	U		
Sulfate	mg/L	NV	< 2.5	U	NA		NA		NA		NA		NA		NA		2910			
Total organic carbon	mg/L	NV	2610		NA		NA		NA		NA		NA		NA		21.6			
Perchlorate (EPA 6850)																				
Perchlorate	µg/L	17	< 0.2	U	< 0.2	U	**220**		**264**		< 0.2	U	< 0.2	U	< 0.2	U	0.291	J		
Volatile Organic Compounds (8260C)																				
1,1,2-Trichloroethane	µg/L	5	< 20	UJ	< 25	U	< 10	U	< 10	U	< 50	U	< 5	U	< 10	U	< 10	U		
1,1-Dichloroethene	µg/L	7	**38**	J	**21**	J	**21**		**21**		**36**	J	**20**		**9.5**	J	**39**			
1,2-Dichloroethane	µg/L	5	< 10	UJ	**16**	J	**21**		**21**		**40**	J	< 2.5	U	**18**		**10**			
cis-1,2-Dichloroethene	µg/L	70	**14000**	J	**2500**		**7400**		**7500**		**11000**		**520**		**2900**		**8700**			
Methylene chloride	µg/L	5	< 20	UJ	< 25	U	< 10	U	< 10	U	< 50	U	< 5	U	< 10	U	< 10	U		
Trichloroethene	µg/L	5	**9000**	J	**16000**		**6300**		**6300**		**19000**		**770**		**2200**		**8100**			
Vinyl chloride	µg/L	2	**2500**	J	**35**		**120**		**120**		**390**		**23**		**56**		**43**			

Landfill 16 (LHAAP-16) Remedial Action Operation Monitoring
Year 2, Quarter 3

			Injection Area	Landfill Biobarrier #3									Bayou Biobarrier					
			Location Code	16RW06		16RW07		16RW09		16RW10		16IW10	16IW20		16RW11			
			Sample ID	16RW06-211025		16RW07-211025		16RW09-211026		16RW10-211026		16IW10-211020	16IW20-211021		16RW11-211021		16RW11-211021-FD	
			Sample Date	10/25/2021		10/25/2021		10/26/2021		10/26/2021		10/20/2021	10/21/2021		10/21/2021		10/21/2021	
			Sample Type	REG		REG		REG		REG		REG	REG		REG		FD	
			Sample Purpose	Upgradient Well for Landfill Biobarrier #3; Shallow Zone		Upgradient Well for Landfill Biobarrier #3; Shallow Zone		Downgradient Well for Landfill Biobarrier #3; Shallow Zone		Downgradient Well for Landfill Biobarrier #3; Shallow Zone		Performance Data Within Landfill Biobarrier #3; Shallow Zone	Performance Data Within the Bayou Biobarrier; Shallow Zone		Performance Data Within the Bayou Biobarrier; Shallow Zone			
Analyte	**Units**	**MCL/PCL/UTL [a]**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**
Dechlorinating Bacteria (Census)																		
Dehalococcoides	cells/mL	NV	NA		NA		NA		NA		NA		NA		NA		NA	
Field Measurements																		
Dissolved oxygen	mg/L	NV	0.37		0.86		0.31		0.2		0.32		0.15		0.27		0.27	
Oxidation Reduction Potential	mV	NV	135		117		54		97		-65		47		-11		-11	
pH	SU	NV	5.75		6.23		6.08		6.2		6.55		5.98		6.19		6.19	
Dissolved Gases (RSK-175)																		
Ethane	µg/L	NV	NA		NA		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	NA		NA	
Ethylene	µg/L	NV	NA		NA		2.6		5.19		13.2	J	6.77	J	NA		NA	
Methane	µg/L	NV	NA		NA		180		216		2520	J	1370	J	NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)																		
Alkalinity	mg/L	NV	NA		NA		NA		NA		1110		547		NA		NA	
Bromide	mg/L	NV	NA		NA		NA		NA		59.6	J	13.3		NA		NA	
Nitrate	mg/L	NV	NA		NA		NA		NA		< 0.2	U	< 0.5	U	NA		NA	
Sulfate	mg/L	NV	NA		NA		NA		NA		< 1	U	254		NA		NA	
Total organic carbon	mg/L	NV	NA		NA		2.58		5.9		203	J	8.46		NA		NA	
Perchlorate (EPA 6850)																		
Perchlorate	µg/L	17	< 0.2	U	0.262	J	< 0.2	U	**27.8**		< 0.2	U	< 0.2	U	< 0.2	U	< 0.2	U
Volatile Organic Compounds (8260C)																		
1,1,2-Trichloroethane	µg/L	5	< 1	U	< 5	U	< 5	U	< 5	U	< 10	U	< 1	UJ	< 1	UJ	< 1	UJ
1,1-Dichloroethene	µg/L	7	< 0.5	U	4.1	J	5.4		3.9	J	< 5	U	< 0.5	UJ	< 0.5	UJ	< 0.5	UJ
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 2.5	U	< 2.5	U	**15**		< 5	U	< 0.5	UJ	< 0.5	UJ	< 0.5	UJ
cis-1,2-Dichloroethene	µg/L	70	6.8		35		**340**		**500**		11		1.9	J	< 0.5	UJ	< 0.5	UJ
Methylene chloride	µg/L	5	< 1	U	< 5	U	< 5	U	< 5	U	< 10	U	< 1	UJ	< 1	UJ	< 1	UJ
Trichloroethene	µg/L	5	**34**		**700**		**610**		**950**		< 5	U	1.2	J	1.3	J	1.2	J
Vinyl chloride	µg/L	2	< 0.5	U	**15**		**28**		**25**		< 5	U	**3.2**	J	< 0.5	UJ	< 0.5	UJ

Landfill 16 (LHAAP-16) Remedial Action Operation Monitoring
Year 2, Quarter 3

			Injection Area	Bayou Biobarrier						Mid Plume and Bayou Biobarrier		Mid Plume Area							
			Location Code	16WW12		16WW22		16WW40		16WW39		16EW01		16EW02		16EW03		16EW04	
			Sample ID	16WW12-211021		16WW22-211019		16WW40-211021		16WW39-211025		16EW01-211020		16EW02-211020		16EW03-211020		16EW04-211020	
			Sample Date	10/21/2021		10/19/2021		10/21/2021		10/25/2021		10/20/2021		10/20/2021		10/20/2021		10/20/2021	
			Sample Type	REG		REG		REG		REG		REG		REG		REG		REG	
			Sample Purpose	Upgradient Well for Bayou Biobarrier; Shallow Zone		Upgradient Well for Bayou Biobarrier; Shallow Zone		Downgradient Well for Bayou Biobarrier; Shallow Zone		Upgradient Well for Bayou Biobarrier and Downgradient Well for Mid-Plume; Shallow Zone		Performance Data Within Mid-Plume ISB Injection Area; Shallow Zone		Performance Data Within Mid-Plume ISB Injection Area; Shallow Zone		Performance Data Within Mid-Plume ISB Injection Area; Shallow Zone		Performance Data Within Mid-Plume ISB Injection Area; Shallow Zone	
Analyte	**Units**	**MCL/PCL/UTL [a]**		**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**
Dechlorinating Bacteria (Census)																			
Dehalococcoides	cells/mL	NV		NA		51.1		NA		NA		NA		NA		NA		NA	
Field Measurements																			
Dissolved oxygen	mg/L	NV		0.27		0.19		0.27		0.14		0.28		0.26		0.11		0.34	
Oxidation Reduction Potential	mV	NV		165		146		89		111		77		15		-81		115	
pH	SU	NV		5.75		5.45		6		5.9		5.93		6.11		5.45		5.95	
Dissolved Gases (RSK-175)																			
Ethane	µg/L	NV		NA		< 0.5	U	1.67		NA		< 0.5	U	NA		< 0.5	U	NA	
Ethylene	µg/L	NV		NA		0.951	J	2.88	J	NA		50.9	J	NA		131	J	NA	
Methane	µg/L	NV		NA		1.11		616	J	NA		122	J	NA		164	J	NA	
General Chemistry (2320B/SM5310B/SW9056A)																			
Alkalinity	mg/L	NV		NA		205		NA		NA		610		NA		1050		NA	
Bromide	mg/L	NV		NA		1.8		NA		NA		10.1		NA		9.02		NA	
Nitrate	mg/L	NV		NA		< 0.2	UJ	NA		NA		< 0.5	U	NA		< 0.5	U	NA	
Sulfate	mg/L	NV		NA		166		NA		NA		3150		NA		1860		NA	
Total organic carbon	mg/L	NV		NA		3.04		11.3		NA		19.5		NA		67		NA	
Perchlorate (EPA 6850)																			
Perchlorate	µg/L	17		**23.2**		0.486		0.622		9.07		**40.3**		2.53		< 0.2	U	< 0.2	U
Volatile Organic Compounds (8260C)																			
1,1,2-Trichloroethane	µg/L	5		< 10	UJ	< 1	U	< 10	UJ	< 1	U	< 10	U	**7.2**	J	< 10	U	< 10	U
1,1-Dichloroethene	µg/L	7		< 5	UJ	< 0.5	U	< 5	UJ	0.61	J	6.8	J	**65**		< 5	U	5.6	J
1,2-Dichloroethane	µg/L	5		**5.1**	J	< 0.5	U	**5.2**	J	< 0.5	U	**8**	J	**37**		< 5	U	< 5	U
cis-1,2-Dichloroethene	µg/L	70		69	J	2.5		**170**	J	28		**3400**		**22000**		**270**		**1300**	
Methylene chloride	µg/L	5		< 10	UJ	< 1	U	< 10	UJ	< 1	U	< 10	U	< 10	U	< 10	U	< 10	U
Trichloroethene	µg/L	5		**1000**	J	**7.6**		**1000**	J	**210**	J	**970**		**23000**		**54**		**5100**	
Vinyl chloride	µg/L	2		**4.6**	J	< 0.5	U	< 5	UJ	1.8		**180**		**630**		**92**		**15**	

Landfill 16 (LHAAP-16) Remedial Action Operation Monitoring
Year 2, Quarter 3

			Injection Area	Mid Plume Area															
			Location Code	16EW05				16EW06		16EW07		16EW08		16WW21		16WW29			
			Sample ID	16EW05-211021		16EW05-211021-FD		16EW06-211021		16EW07-211021		16EW08-211020		16WW21-211019		16WW29-211014		16WW29-211014-FD	
			Sample Date	10/21/2021		10/21/2021		10/21/2021		10/21/2021		10/20/2021		10/19/2021		10/14/2021		10/14/2021	
			Sample Type	REG		FD		REG		REG		REG		REG		REG		FD	
			Sample Purpose	Performance Data Within Mid-Plume ISB Injection Area; Intermediate Zone				Performance Data Within Mid-Plume ISB Injection Area; Intermediate Zone		Performance Data Within Mid-Plume ISB Injection Area; Intermediate Zone		Performance Data Within Mid-Plume ISB Injection Area; Intermediate Zone		Downgradient Well for Mid-Plume; Upgradient Well for Bayou Biobarrier; Upper Deep Zone		Downgradient Well for Mid-Plume; Intermediate Zone			
Analyte	**Units**	**MCL/PCL/UTL [a]**		**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**
Dechlorinating Bacteria (Census)																			
Dehalococcoides	cells/mL	NV		NA		NA		NA		NA		NA		NA		32.4		NA	
Field Measurements																			
Dissolved oxygen	mg/L	NV		0.4		0.4		0.08		0.14		0.21		0.64		0.43		0.43	
Oxidation Reduction Potential	mV	NV		-78		-78		-105		-6		19		33		-9		-9	
pH	SU	NV		5.19		5.19		5.2		5.47		4.95		6.18		6.1		6.1	
Dissolved Gases (RSK-175)																			
Ethane	µg/L	NV		NA		NA		NA		NA		NA		NA		< 0.5	U	< 0.5	U
Ethylene	µg/L	NV		NA		NA		NA		NA		NA		NA		3.66	J	2.32	J
Methane	µg/L	NV		NA		NA		NA		NA		NA		NA		19.8		21.4	
General Chemistry (2320B/SM5310B/SW9056A)																			
Alkalinity	mg/L	NV		324		298		NA		NA		NA		NA		24		26.5	
Bromide	mg/L	NV		74		72.3		< 0.99	U	NA		NA		NA		< 0.2	U	< 0.2	U
Nitrate	mg/L	NV		< 0.5	U	< 0.5	U	0.537	J	NA		NA		NA		< 0.2	U	< 0.2	U
Sulfate	mg/L	NV		3.95	J	1.8	J	< 4.95	U	NA		NA		NA		1700		1890	
Total organic carbon	mg/L	NV		21900		20800		NA		NA		NA		NA		16.8		18	
Perchlorate (EPA 6850)																			
Perchlorate	µg/L	17		0.164	J	< 0.2	U	< 0.2	UJ	0.22	J	< 0.2	U	< 0.2	U	< 0.2	U	< 0.2	U
Volatile Organic Compounds (8260C)																			
1,1,2-Trichloroethane	µg/L	5		< 10000	UJ	< 10000	UJ	< 5000	UJ	< 10000	UJ	< 5	U	< 1	U	< 1	U	< 1	U
1,1-Dichloroethene	µg/L	7		< 5000	UJ	< 5000	UJ	< 2500	UJ	< 5000	UJ	< 2.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,2-Dichloroethane	µg/L	5		< 5000	UJ	< 5000	UJ	< 2500	UJ	< 5000	UJ	< 2.5	U	< 0.5	U	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70		< 5000	UJ	< 5000	UJ	**6800**	J	< 5000	UJ	14		< 0.5	U	< 0.5	U	< 0.5	U
Methylene chloride	µg/L	5		< 10000	UJ	< 10000	UJ	< 5000	UJ	< 10000	UJ	< 5	U	< 1	U	< 1	U	< 1	U
Trichloroethene	µg/L	5		< 5000	UJ	< 5000	UJ	**3000**	J	< 5000	UJ	3.3	J	0.56	J	0.64	J	< 0.5	U
Vinyl chloride	µg/L	2		< 5000	UJ	< 5000	UJ	< 2500	UJ	< 5000	UJ	< 2.5	U	< 0.5	U	< 0.5	U	< 0.5	U

Landfill 16 (LHAAP-16) Remedial Action Operation Monitoring
Year 2, Quarter 3

			Injection Area	Mid Plume Area							MNA and LTM Performance Wells from RAWP Table 4-9							
			Location Code	16WW30		16WW48		16WW49		16WW51		16WW13		16WW14		16WW16		16WW23	
			Sample ID	16WW30-211014		16WW48-211019		16WW49-211019		16WW51-211019		16WW13-211026		16WW14-211025		16WW16-211013		16WW23-211013	
			Sample Date	10/14/2021		10/19/2021		10/19/2021		10/19/2021		10/26/2021		10/25/2021		10/13/2021		10/13/2021	
			Sample Type	REG		REG		REG		REG		REG		REG		REG		REG	
			Sample Purpose	Downgradient Well for Mid-Plume; Shallow Zone		Downgradient Well for Mid-Plume; Shallow Zone		Performance Data for Mid-Plume ISB Injection Area; Intermediate Zone		Performance Data for Mid-Plume ISB Injection Area; Intermediate Zone		MNA Evaluation; Downgradient of Landfill Biobarrier #1; Intermediate Zone		MNA Evaluation; Upgradient of Landfill Biobarrier #3; Shallow Zone		MNA Evaluation; Upgradient of Landfill Biobarrier #2; Shallow Zone		MNA Evaluation; Intermediate Zone	
Analyte	**Units**	**MCL/PCL/UTL [a]**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**
Dechlorinating Bacteria (Census)																		
Dehalococcoides	cells/mL	NV	NA		923		NA		NA		NA		NA		0.1	J	NA	
Field Measurements																		
Dissolved oxygen	mg/L	NV	0.24		0.46		0.35		0.52		0.63		0.36		0.41		0.23	
Oxidation Reduction Potential	mV	NV	11		200		140		-24		218		196		128		-5	
pH	SU	NV	5.91		5.97		5.44		6.04		5.2		5.82		5.83		5.87	
Dissolved Gases (RSK-175)																		
Ethane	µg/L	NV	NA		2.36		NA		NA		NA		NA		2.29		NA	
Ethylene	µg/L	NV	NA		23.3	J	NA		NA		NA		NA		3.29		NA	
Methane	µg/L	NV	NA		6.74		NA		NA		NA		NA		406		NA	
General Chemistry (2320B/SM5310B/SW9056A)																		
Alkalinity	mg/L	NV	NA		409		NA		NA		NA		NA		365		NA	
Bromide	mg/L	NV	NA		< 0.2	U	NA		NA		NA		NA		< 0.1	U	NA	
Nitrate	mg/L	NV	NA		< 0.2	U	NA		NA		NA		NA		< 0.1	U	NA	
Sulfate	mg/L	NV	NA		2530		NA		NA		NA		NA		192		NA	
Total organic carbon	mg/L	NV	NA		15.7		NA		NA		NA		NA		6.66		NA	
Perchlorate (EPA 6850)																		
Perchlorate	µg/L	17	< 0.2	UJ	**37.9**		< 0.2	U	< 0.2	U	< 0.2	U	< 0.2	U	**555**		< 0.2	UJ
Volatile Organic Compounds (8260C)																		
1,1,2-Trichloroethane	µg/L	5	< 1	U	< 10	U	< 1	U	< 5	U	< 5	U	< 1	U	< 25	U	< 1	U
1,1-Dichloroethene	µg/L	7	< 0.5	U	**37**		< 0.5	U	< 2.5	U	< 2.5	U	< 0.5	U	**33**		< 0.5	U
1,2-Dichloroethane	µg/L	5	< 0.5	U	**35**		< 0.5	U	< 2.5	U	< 2.5	U	< 0.5	U	**41**		< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	1.2		**17000**		**72**		**140**		**680**		< 0.5	U	**18000**		< 0.5	U
Methylene chloride	µg/L	5	< 1	U	< 10	U	< 1	U	< 5	U	< 5	U	< 1	U	< 25	U	< 1	U
Trichloroethene	µg/L	5	**32**		**15000**		**30**		**2500**		**2800**		**12**		**34000**		1.8	
Vinyl chloride	µg/L	2	< 0.5	U	**170**		< 0.5	U	< 2.5	U	**10**		< 0.5	U	**200**		< 0.5	U

Landfill 16 (LHAAP-16) Remedial Action Operation Monitoring
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		Injection Area	MNA and LTM Performance Wells from RAWP Table 4-9													
		Location Code	16WW24		16WW25				16WW27		16WW31		16WW32		16WW33	
		Sample ID	16WW24-211013		16WW25-211014		16WW25-211014-FD		16WW27-211018		16WW31-211018		16WW32-211018		16WW33-211018	
		Sample Date	10/13/2021		10/14/2021		10/14/2021		10/18/2021		10/18/2021		10/18/2021		10/18/2021	
		Sample Type	REG		REG		FD		REG		REG		REG		REG	
		Sample Purpose	MNA Evaluation; Shallow Zone		MNA Evaluation; Intermediate Zone				MNA Evaluation; Downgradient of Landfill Biobarrier #2; Intermediate Zone		MNA Evaluation; Intermediate Zone		MNA Evaluation; Upgradient of Bayou Biobarrier; Shallow Zone		MNA Evaluation; Intermediate Zone	
Analyte	**Units**	**MCL/PCL/UTL [a]**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**
Dechlorinating Bacteria (Census)																
Dehalococcoides	cells/mL	NV	NA		3.7		NA		NA		NA		NA		NA	
Field Measurements																
Dissolved oxygen	mg/L	NV	1		0.33		0.33		4.72		0.57		0.39		0.38	
Oxidation Reduction Potential	mV	NV	327		27		27		11		190		133		152	
pH	SU	NV	3.52		5.82		5.82		5.62		5.4		5.8		5.37	
Dissolved Gases (RSK-175)																
Ethane	µg/L	NV	NA		< 0.5	U	< 0.5	U	NA		NA		NA		NA	
Ethylene	µg/L	NV	NA		< 0.5	UJ	1.94	J	NA		NA		NA		NA	
Methane	µg/L	NV	NA		12	J	7.66	J	NA		NA		NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)																
Alkalinity	mg/L	NV	NA		76.7	J	110	J	NA		NA		NA		NA	
Bromide	mg/L	NV	NA		< 0.5	U	< 0.5	U	NA		NA		NA		NA	
Nitrate	mg/L	NV	NA		< 0.5	U	< 0.5	U	NA		NA		NA		NA	
Sulfate	mg/L	NV	NA		4250		4070		NA		NA		NA		NA	
Total organic carbon	mg/L	NV	NA		28.3		26.1		NA		NA		NA		NA	
Perchlorate (EPA 6850)																
Perchlorate	µg/L	17	< 0.2	U	< 0.2	U	< 0.2	U	< 0.2	U	< 0.2	U	< 0.2	U	< 0.2	U
Volatile Organic Compounds (8260C)																
1,1,2-Trichloroethane	µg/L	5	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
1,1-Dichloroethene	µg/L	7	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Methylene chloride	µg/L	5	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
Trichloroethene	µg/L	5	1.2		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Vinyl chloride	µg/L	2	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U

Landfill 16 (LHAAP-16) Remedial Action Operation Monitoring
Year 2, Quarter 3

			Injection Area	MNA and LTM Performance Wells from RAWP Table 4-9															
			Location Code	16WW34				16WW35		16WW37		16WW38		16WW41		16WW43		16WW44	
			Sample ID	16WW34-211018		16WW34-211018-FD		16WW35-211013		16WW37-211025		16WW38-211025		16WW41-211019		16WW43-211018		16WW44-211025	
			Sample Date	10/18/2021		10/18/2021		10/13/2021		10/25/2021		10/25/2021		10/19/2021		10/18/2021		10/25/2021	
			Sample Type	REG		FD		REG		REG		REG		REG		REG		REG	
			Sample Purpose	MNA Evaluation; Shallow Zone				MNA Evaluation; Downgradient of Landfill Biobarrier #3; Intermediate Zone		MNA Evaluation; Intermediate Zone		MNA evaluation; Shallow Zone		MNA Evaluation; Upgradient of the Bayou Biobarrier; Intermediate Zone		MNA Evaluation; Shallow Zone		MNA Evaluation; Shallow Zone	
Analyte	**Units**	**MCL/PCL/UTL [a]**		**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**
Dechlorinating Bacteria (Census)																			
Dehalococcoides	cells/mL	NV		NA		NA		52.2		NA		NA		< 0.5	U	NA		NA	
Field Measurements																			
Dissolved oxygen	mg/L	NV		0.36		0.36		0.27		0.54		0.29		0.2		0.39		0.31	
Oxidation Reduction Potential	mV	NV		171		171		158		216		49		208		34		156	
pH	SU	NV		5.34		5.34		6.04		5.79		6.15		5.84		5.47		5.28	
Dissolved Gases (RSK-175)																			
Ethane	µg/L	NV		NA		NA		< 0.5	U	NA		NA		< 0.5	U	NA		NA	
Ethylene	µg/L	NV		NA		NA		5.3		NA		NA		4.41	J	NA		NA	
Methane	µg/L	NV		NA		NA		49.8		NA		NA		3.37		NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)																			
Alkalinity	mg/L	NV		NA		NA		1020		NA		NA		850		NA		NA	
Bromide	mg/L	NV		NA		NA		< 0.5	U	NA		NA		< 0.5	U	NA		NA	
Nitrate	mg/L	NV		NA		NA		< 0.5	U	NA		NA		< 0.5	U	NA		NA	
Sulfate	mg/L	NV		NA		NA		8550		NA		NA		1450		NA		NA	
Total organic carbon	mg/L	NV		NA		NA		52.2		NA		NA		37.9		NA		NA	
Perchlorate (EPA 6850)																			
Perchlorate	µg/L	17		< 0.2	U	< 0.2	U	**366**		**168**		< 0.2	U	**66.5**		< 0.2	U	< 0.2	U
Volatile Organic Compounds (8260C)																			
1,1,2-Trichloroethane	µg/L	5		< 1	U	< 1	U	< 10	U	< 1	U	< 5	U	< 10	U	< 1	U	< 1	U
1,1-Dichloroethene	µg/L	7		< 0.5	U	< 0.5	U	**72**		< 0.5	U	**10**		< 5	U	< 0.5	U	< 0.5	U
1,2-Dichloroethane	µg/L	5		< 0.5	U	< 0.5	U	< 5	U	< 0.5	U	< 2.5	U	< 5	U	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70		< 0.5	U	< 0.5	U	**5100**		15		**870**		**920**		< 0.5	U	< 0.5	U
Methylene chloride	µg/L	5		< 1	U	< 1	U	< 10	U	< 1	U	< 5	U	< 10	U	< 1	U	< 1	U
Trichloroethene	µg/L	5		< 0.5	U	< 0.5	U	**9700**		**190**		**1200**		**1900**		< 0.5	U	< 0.5	U
Vinyl chloride	µg/L	2		< 0.5	U	< 0.5	U	**39**		**4.2**		**48**		**59**		< 0.5	U	< 0.5	U

Landfill 16 (LHAAP-16) Remedial Action Operation Monitoring
Year 2, Quarter 3

			Injection Area	MNA and LTM Performance Wells from RAWP Table 4-9									
			Location Code	16WW46		16WW55		16WW56		16WW57		16WW58	
			Sample ID	16WW46-211018		16WW55-211014		16WW56-211019		16WW57-211013		16WW58-211013	
			Sample Date	10/18/2021		10/14/2021		10/19/2021		10/13/2021		10/13/2021	
			Sample Type	REG		REG		REG		REG		REG	
			Sample Purpose	MNA Evaluation; Shallow Zone		MNA Evaluation; Shallow Zone		MNA Evaluation; Downgradient of the Bayou Biobarrier; Shallow Zone		MNA Evaluation; Intermediate Zone		MNA Evaluation; Intermediate Zone	
Analyte	**Units**	**MCL/PCL/UTL [a]**		**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**
Dechlorinating Bacteria (Census)													
Dehalococcoides	cells/mL	NV		NA		< 0.5	U	5.85		6.7		8.05	
Field Measurements													
Dissolved oxygen	mg/L	NV		0.48		0.61		0.33		0.26		0.34	
Oxidation Reduction Potential	mV	NV		94		183		253		-21		-53	
pH	SU	NV		5.7		5.9		5.32		5.54		5.11	
Dissolved Gases (RSK-175)													
Ethane	µg/L	NV		NA		< 0.5	U	< 0.5	UJ	< 0.5	U	< 0.5	U
Ethylene	µg/L	NV		NA		1.45	J	< 0.5	UJ	1.95		3.14	
Methane	µg/L	NV		NA		10.9		0.952	J	1.43		1.67	
General Chemistry (2320B/SM5310B/SW9056A)													
Alkalinity	mg/L	NV		NA		303		186		164		162	
Bromide	mg/L	NV		NA		< 0.2	U	1.55		< 0.5	U	< 0.1	U
Nitrate	mg/L	NV		NA		0.311		< 0.2	UJ	< 0.5	U	< 0.1	U
Sulfate	mg/L	NV		NA		638		137		2250		194	
Total organic carbon	mg/L	NV		NA		5.54		1.34	J	19		5.5	
Perchlorate (EPA 6850)													
Perchlorate	µg/L	17		< 0.2	U	**363**		< 0.2	U	< 0.2	UJ	< 0.2	UJ
Volatile Organic Compounds (8260C)													
1,1,2-Trichloroethane	µg/L	5		< 1	U	< 5	U	< 1	U	< 1	U	< 5	U
1,1-Dichloroethene	µg/L	7		< 0.5	U	5.5		< 0.5	U	1.2		< 2.5	U
1,2-Dichloroethane	µg/L	5		< 0.5	U	**28**		< 0.5	U	< 0.5	U	< 2.5	U
cis-1,2-Dichloroethene	µg/L	70		< 0.5	U	**660**		0.76	J	< 0.5	U	**120**	
Methylene chloride	µg/L	5		< 1	U	< 5	U	< 1	U	< 1	U	< 5	U
Trichloroethene	µg/L	5		< 0.5	U	**2900**		**6.2**		**75**		**3300**	
Vinyl chloride	µg/L	2		< 0.5	U	< 2.5	U	< 0.5	U	< 0.5	U	< 2.5	U

Landfill 16 (LHAAP-16) Remedial Action Operation Monitoring
Year 2, Quarter 3

Notes:

[a] Cleanup Level for manganese identifed in Table 1-1 of the Remedial Action Work Plan is the 95% upper tolerance limit value from the *Final Evaluation of Perimeter Well Data for Use as Groundwater Background* (Shaw, 2007)

[b] Due to high viscosity of the samples collected from 16EW05, 16EW06, and 16EW07, the volatile organic compound analyses were performed at high dilutions. The TOC and alkalinity analyses could not be performed on the sample from 16EW06. Dissolved gases analyses could not be performed on samples from 16EW05 or 16EW06.

Blue highlighting indicates the concentration (bolded) or detection level (unbolded) exceeds the MCL/PCL

Some samples have been diluted due to the concentration(s) of one or more analytes exceeding the upper limit of the calibration curve.

J - Estimated: The analyte was positively identified, the quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.

UJ – Undetected estimated. The analyte was analyzed for but, was not detected. Even though the analyte was not detected, certain discrepancies in meeting analyte specific quality control were not met.

U - Undetected: The analyte was analyzed for, but not detected.

MCL - Maximum Contaminant Limit

PCL – Texas Risk Reduction Program (TRRP) Tier 1 Groundwater Residential Protective Concentration Level (used for perchlorate, manganese, and nickel where no MCL has been established)

mg/L - milligrams per liter

µg/L - micrograms per liter

ID - Identification

REG - Regular sample

FD - Field duplicate sample

< - The analyte was not detected above the concentration shown

NV - No MCL/PCL is shown for analytes that are not contaminants of concern

NA - not analyzed

SU - standard pH Units

mV - millivolts

cells/mL - cells per milliliter

UTL - upper tolerance limit

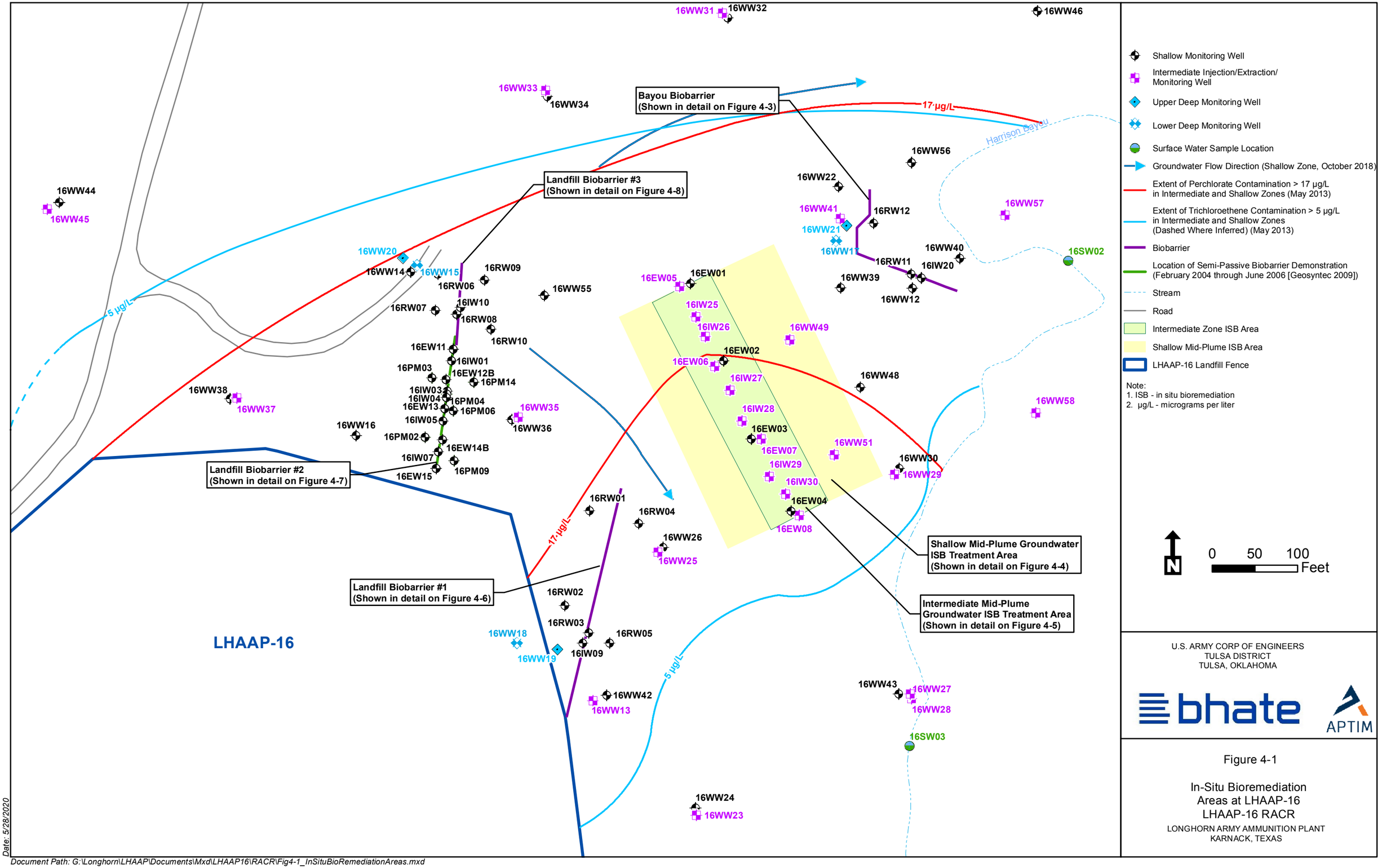

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Figure 4-1

In-Situ Bioremediation
Areas at LHAAP-16
LHAAP-16 RACR

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Date: 5/28/2020

Document Path: G:\Longhorn\LHAAP\Documents\Mxd\LHAAP16\RACR\Fig4-1_InSituBioRemediationAreas.mxd

LHAAP-50 Remedial Action Operation Monitoring
Year 2, Quarter 2

			Location Code	50WW05		50WW06		50WW08		50WW09		50WW11			
			Sample ID	50WW05-211007		50WW06-211007		50WW08-211011		50WW09-211011		50WW11-211007		50WW11-211007-FD	
			Sample Date	10/7/2021		10/7/2021		10/11/2021		10/11/2021		10/7/2021		10/7/2021	
			Sample Purpose	REG		REG		REG		REG		REG		FD	
			Location Description:	Site 50 - NE, lower shallow, outside site boundary.		Site 50 - ENE, outside site boundary.		Site 50 - E, upper shallow, inside site boundary.		Site 50 - E, lower shallow, inside site boundary.		Site 50 - ENE, upper shallow, outside site boundary.			
Analyte	**Units**	**MCL/PCL**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**
Dechlorinating Bacteria (Census)														
Dehalococcoides	cells/mL	NV	NA		2		NA		NA		1.5		NA	
Field Measurements														
Dissolved oxygen	mg/L	NV	0.34		0.19		0.26		0.18		0.27		0.27	
Ferrous Iron	NA	NV	NM		2.35		NM		NM		0.57		0.57	
Oxidation Reduction Potential	mV	NV	120		29		200		202		135		135	
pH	Std units	NV	6.06		4.84		5.79		5.36		5.54		5.54	
Dissolved Gases (RSK-175)														
Carbon dioxide	µg/L	NV	NA		541000	J	NA		NA		450000		417000	
Ethane	µg/L	NV	NA		2	UJ	NA		NA		2	UJ	2	UJ
Ethylene	µg/L	NV	NA		1	UJ	NA		NA		1	UJ	1	UJ
Methane	µg/L	NV	NA		7.3	J	NA		NA		3	J	4.3	J
General Chemistry (2320B/SM5310B/SW9056A)														
Chloride	mg/L	NV	NA		42.6		NA		NA		275		279	
Nitrate	mg/L	NV	NA		< 0.1	U	NA		NA		< 0.1	U	< 0.1	U
Sulfate	mg/L	NV	NA		22.9		NA		NA		356		365	
Total organic carbon	mg/L	NV	NA		5.32		NA		NA		2.93		2.64	
Perchlorate (EPA 6850)														
Perchlorate	µg/L	17	0.252	J	15.1	J	**682**		0.167	J	**4500**		**4700**	
Volatile Organic Compounds (8260C)														
1,1-Dichloroethene	µg/L	7	4.8		< 0.5	U	0.56	J	< 0.5	U	**9.3**		**11**	
1,2-Dichloroethane	µg/L	5	2.6		< 0.5	U	3.2		< 0.5	U	**15**		**16**	
cis-1,2-Dichloroethene	µg/L	70	**170**		< 0.5	U	54		0.93	J	33		36	
Tetrachloroethene	µg/L	5	0.89	J	< 1	U	0.9	J	< 1	U	2.8		3.3	
Trichloroethene	µg/L	5	**290**		2.8		**370**		**5.7**		**1200**		**1300**	
Vinyl chloride	µg/L	2	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	0.84	J	1	

LHAAP-50 Remedial Action Operation Monitoring
Year 2, Quarter 2

			Location Code	50WW12		50WW13		50WW14		50WW15		50WW16			
			Sample ID	50WW12-211007		50WW13-211007		50WW14-211007		50WW15-211011		50WW16-211011		50WW16-211011-FD	
			Sample Date	10/7/2021		10/7/2021		10/7/2021		10/11/2021		10/11/2021		10/11/2021	
			Sample Purpose	REG		REG		REG		REG		REG		FD	
			Location Description:	Site 50 - ENE, upper shallow, outside site boundary.		Site 50 - E, upper shallow, outside site boundary.		Site 50 - E, lower shallow, outside site boundary, along S. Crockett Ave.		Site 50 - NNE, upper shallow, outside site boundary, along Goose Prairie Creek bridge.		Site 50 - NE, upper shallow, outside site boundary, along Goose Prairie Creek.			
Analyte	**Units**	**MCL/PCL**		**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**
Dechlorinating Bacteria (Census)															
Dehalococcoides	cells/mL	NV		6.1		0.8	J	0.7	J	NA		NA		NA	
Field Measurements															
Dissolved oxygen	mg/L	NV		0.24		0.25		0.28		0.22		0.12		0.12	
Ferrous Iron	NA	NV		0.00		2.05		3.87		NM		NM		NM	
Oxidation Reduction Potential	mV	NV		108		126		-12		121		192		192	
pH	Std units	NV		5.80		5.53		5.39		5.52		4.90		4.90	
Dissolved Gases (RSK-175)															
Carbon dioxide	µg/L	NV		366000		477000		472000		NA		NA		NA	
Ethane	µg/L	NV		2	UJ	2	UJ	2	UJ	NA		NA		NA	
Ethylene	µg/L	NV		1	UJ	1	UJ	1	UJ	NA		NA		NA	
Methane	µg/L	NV		810	J	3.3	J	2.5	J	NA		NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)															
Chloride	mg/L	NV		1120		294		422		NA		NA		NA	
Nitrate	mg/L	NV		< 0.1	U	< 0.1	U	< 0.1	U	NA		NA		NA	
Sulfate	mg/L	NV		567		338		377		NA		NA		NA	
Total organic carbon	mg/L	NV		2.49		3.11		1.39		NA		NA		NA	
Perchlorate (EPA 6850)															
Perchlorate	µg/L	17		**25500**		**5080**		< 0.2	U	< 0.2	U	< 0.2	U	< 0.2	U
Volatile Organic Compounds (8260C)															
1,1-Dichloroethene	µg/L	7		2.9		5	J	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,2-Dichloroethane	µg/L	5		2.5		**28**		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70		1.1		**130**		4.6		1.4		< 0.5	U	< 0.5	U
Tetrachloroethene	µg/L	5		< 1	U	4.7	J	< 1	U	< 1	U	< 1	U	< 1	U
Trichloroethene	µg/L	5		**290**		**2900**		**28**		2		< 0.5	U	< 0.5	U
Vinyl chloride	µg/L	2		< 0.5	U	**< 2.5**	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U

LHAAP-50 Remedial Action Operation Monitoring
Year 2, Quarter 2

			Location Code	50WW18		50WW22		50WW23		50WW29	
			Sample ID	50WW18-211011		50WW22-211011		50WW23-211011		50WW29-211007	
			Sample Date	10/11/2021		10/11/2021		10/11/2021		10/7/2021	
			Sample Purpose	REG		REG		REG		REG	
			Location Description:	Site 50 - NE, upper shallow, outside site boundary, along Goose Prairie Creek.		Site 50 - SE, upper shallow, outside site boundary.		Site 50 - E, upper shallow, outside site boundary.		Site 50 - ENE, upper shallow, outside site boundary	
Analyte	**Units**	**MCL/PCL**		**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**	**Result**	**Val Qual**
Dechlorinating Bacteria (Census)											
Dehalococcoides	cells/mL	NV		NA		NA		NA		NA	
Field Measurements											
Dissolved oxygen	mg/L	NV		0.16		0.31		0.39		1.73	
Ferrous Iron	NA	NV		NM		NM		NM		NM	
Oxidation Reduction Potential	mV	NV		179		218		200		126	
pH	Std units	NV		5.68		5.63		5.42		5.47	
Dissolved Gases (RSK-175)											
Carbon dioxide	µg/L	NV		NA		NA		NA		NA	
Ethane	µg/L	NV		NA		NA		NA		NA	
Ethylene	µg/L	NV		NA		NA		NA		NA	
Methane	µg/L	NV		NA		NA		NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)											
Chloride	mg/L	NV		NA		NA		NA		NA	
Nitrate	mg/L	NV		NA		NA		NA		NA	
Sulfate	mg/L	NV		NA		NA		NA		NA	
Total organic carbon	mg/L	NV		NA		NA		NA		NA	
Perchlorate (EPA 6850)											
Perchlorate	µg/L	17		< 0.2	U	0.464		0.139	J	3.58	
Volatile Organic Compounds (8260C)											
1,1-Dichloroethene	µg/L	7		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,2-Dichloroethane	µg/L	5		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Tetrachloroethene	µg/L	5		< 1	U	< 1	U	< 1	U	< 1	U
Trichloroethene	µg/L	5		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Vinyl chloride	µg/L	2		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U

LHAAP-50 Remedial Action Operation Monitoring
Year 2, Quarter 2

Notes:

Blue Highlighting Indicates the concentration exceeds the MCL/PCL

J - Estimated: The analyte was positively identified, the quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.

U - Undetected: The analyte was analyzed for, but not detected.

UJ – Undetected estimated. The analyte was analyzed for, but was not detected. Even though the analyte was not detected, certain discrepancies in meeting analyte specific quality control were not met.

MCL - Maximum Contaminant Limit

PCL – Texas Risk Reduction Program (TRRP) Tier 1 Groundwater Residential Protective Concentration Level (used for perchlorate,where no MCL has been established)

mg/L - milligrams per liter

µg/L - micrograms per liter

ID - Identification

REG - Regular sample

FD - Field duplicate sample

< - The analyte was not detected above the concentration shown

NV - No MCL/PCL is shown for analytes that are not contaminants of concern

NA - not analyzed

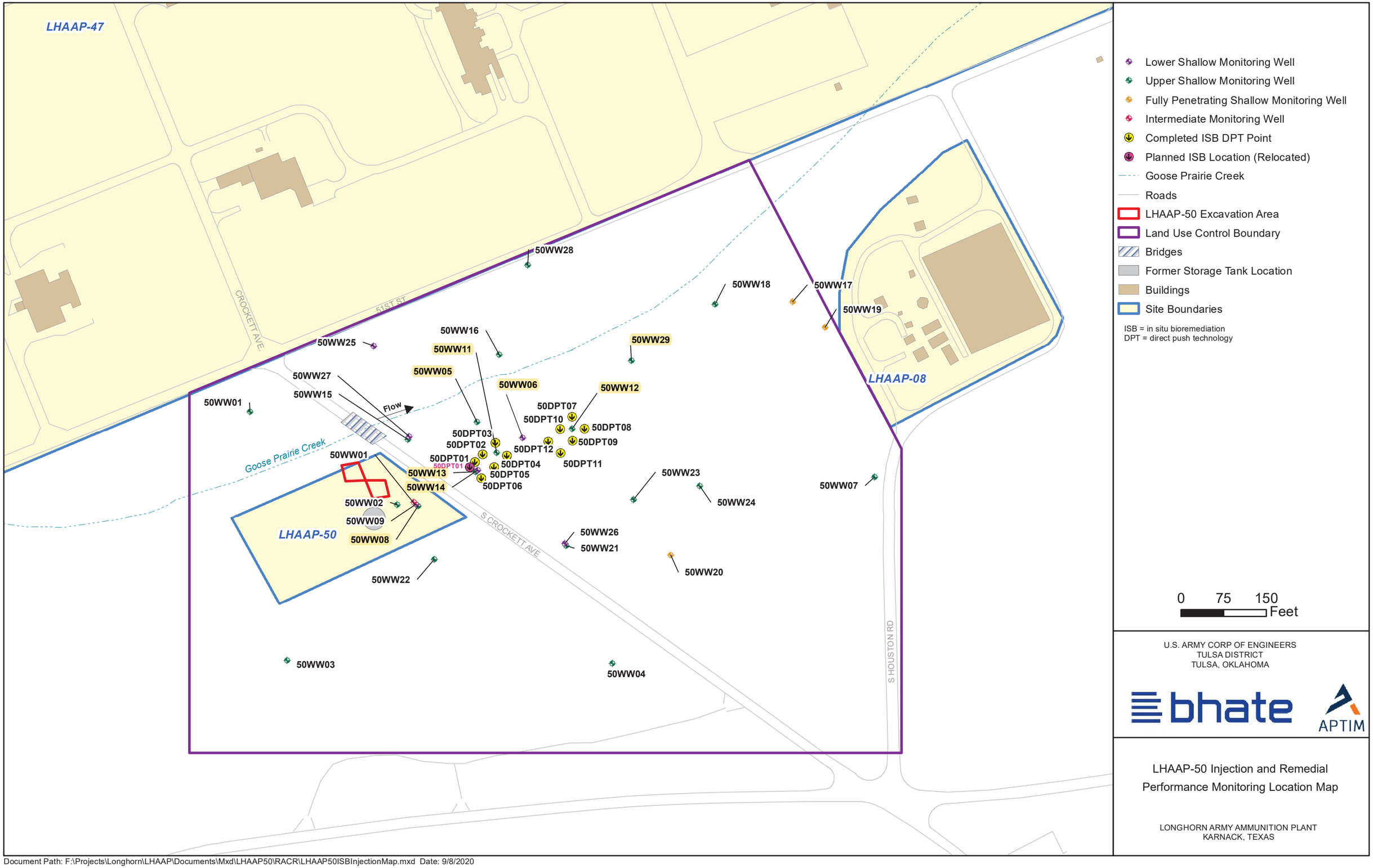
NM - not measured

Std Units - Standard pH Units

mV - millivolts

cells/mL - cells per milliliter

Val Qual - validation qualifier



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LHAAP-50 Injection and Remedial Performance Monitoring Location Map

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Document Path: F:\Projects\Longhorn\LHAAP\Documents\Mxd\LHAAP50\RACR\LHAAP50ISBInjectionMap.mxd Date: 9/8/2020

GWTP Weekly/Effluent Perchlorate Sampling - November 2021

Location ID: Sample Date:	Units	Daily Maximum Conc	PCL	LH18/24-SP650_110221_AIX 11/2/21	LH18/24-SP650_110921_AIX 11/9/21	LH18/24-SP650_110921_AIX 11/9/21	LH18/24-SP650_112321_AIX 11/23/21
Location Description				Weekly	Monthly Eff	Weekly	Weekly
Perchlorate (6850)							
Perchlorate	µg/L	589	17	< 0.0500 U	< 0.250 U	< 0.250 U	< 0.0500 U

µg/L - micrograms per liter

BIX - before ion exchange/AIX - after ion exchange

U- Undetected: The analyte was analyzed for, but not detected and reported to the limit of detection.

GWTP Weekly Sampling - November 2021

Location ID: / Sample Date:	Units	Daily Maximum Conc	LH18/24-SP650_110221 11/2/21	LH18/24-SP650_110921 11/9/21	LH18/24-SP650_112321 11/23/21
Location Description			**GWTP–Collected from a spigot on the discharge of effluent TK-650. Sampled Weekly.**		
Ammonia as N (350.3)					
Ammonia as N	mg/L	NV	**140**	**120**	**110**
Ortho-Phosphate (365.3)					
Ortho-Phosphate	mg/L	NV	**9.26**	**8.49**	**8.0**
Organic Carbon (415.1)					
Total Organic Carbon (TOC)	mg/L	NV	**9.65**	**7.95**	**7.12**

mg/L - milligrams per liter

NV - No Value

GWTP Bi-Weekly Sampling - November 2021

Location ID: / Sample Date:	Units	(Bayou) Daily Maximum Conc	(INF pond) MCL	LH18/24-SP650_110221 11/2/21
Location Description				**GWTP – Collected from a spigot on the discharge of effluent TK-650. Sampled Biweekly.**
Volatile Organic Compounds (8260C)				
1,1,1-Trichloroethane	µg/L	7,230	200	< 0.50 U
1,1,2-Trichloroethane	µg/L	216.9	5	< 1.0 U
1,1-Dichloroethane	µg/L	14,032	NV	< 0.50 U
1,1-Dichloroethene	µg/L	253	7	< 0.50 U
1,2-Dichloroethane	µg/L	181	5	< 0.50 U
1,2-Dichloropropane	µg/L	5	5	< 1.0 U
Acetone	µg/L	2,395	NV	< 2.0 U
Benzene	µg/L	181	5	< 0.50 U
Carbon tetrachloride	µg/L	181	5	< 1.0 U
Chlorobenzene	µg/L	47,180	100	< 1.0 U
Chloroform	µg/L	3,615	NV	< 0.50 U
cis-1,2-Dichloroethene	µg/L	NV	70	**3.2**
Ethylbenzene	µg/L	57,025	700	< 1.0 U
m,p-Xylene	µg/L	83.6	NV	< 1.0 U
Methylene chloride	µg/L	1,699	5	< 1.0 U
o-Xylene	µg/L	83.6	NV	< 1.0 U
Styrene	µg/L	5,987	100	< 1.0 U
Tetrachloroethene	µg/L	180.7	5	< 1.0 U
Toluene	µg/L	4,189	10	< 0.50 U
Trichloroethene	µg/L	181	5	< 0.50 U
Vinyl chloride	µg/L	72	2	< 0.50 U
Anions (9056)				
Chloride	mg/L	NV	NV	**900**
Sulfate	mg/L	NV	NV	**14.6**

µg/L - micrograms per liter

mg/L - milligrams per liter

U- Undetected: The analyte was analyzed for, but not detected and reported to the limit of detection.

NV - No Value

NA -not analyzed

GWTP Monthly Effluent Sampling - November 2021

Location ID: Sample Date:	Units	Daily Maximum Conc	(INF pond) MCL	LH18/24-SP650_110921 11/9/21
Location Description				**GWTP – Collected from a spigot on the discharge of effluent TK-650. Sampled monthly**
Volatile Organic Compounds (8260C)				
1,1,1-Trichloroethane	µg/L	7,230	200	< 0.50 U
1,1,2-Trichloroethane	µg/L	216.9	5	< 1.0 U
1,1-Dichloroethane	µg/L	14,032	NV	< 0.50 U
1,1-Dichloroethene	µg/L	253	7	< 0.50 U
1,2-Dichloroethane	µg/L	181	5	< 0.50 U
1,2-Dichloropropane	µg/L	5	5	< 1.0 U
Acetone	µg/L	2,395	NV	< 2.0 U
Benzene	µg/L	181	5	< 0.50 U
Carbon tetrachloride	µg/L	181	5	< 1.0 U
Chlorobenzene	µg/L	47,180	100	< 1.0 U
Chloroform	µg/L	3,615	NV	< 0.50 U
cis-1,2-dichloroethene	µg/L	NV	70	**2.9**
Ethylbenzene	µg/L	57,025	700	< 1.0 U
m,p-Xylene	µg/L	83.6	NV	< 1.0 U
Methylene chloride	µg/L	1,699	5	< 2.0 U
o-Xylene	µg/L	83.6	NV	< 1.0 U
Styrene	µg/L	5,987	100	< 1.0 U
Tetrachloroethene	µg/L	180.7	5	< 1.0 U
Toluene	µg/L	4,189	10	< 0.50 U
Trichloroethene	µg/L	181	5	< 0.50 U
Vinyl chloride	µg/L	72	2	< 0.50 U
Metals (6020A)				
Barium	mg/L	2	2	**0.534**
Lead	mg/L	0.0046	0.015	< 0.00100 U
Selenium	mg/L	0.012	0.05	< 0.00250 U
Silver	mg/L	0.003	0.1	< 0.000500 U
Hexavalent Chromium (7196A)				
Hexavalent Chromium	mg/L	0.1244	NV	< 0.0100 U
Semi-Volatile Organic Compounds (8270D SIM)				
1,4-Dioxane	µg/L	134.2	NV	**4.6**

µg/L - micrograms per liter

mg/L - milligrams per liter

U- Undetected: The analyte was analyzed for, but not detected and reported to the limit of detection.

NV - no value

GWTP Monthly Influent Sampling - November 2021

Location ID: Sample Date:	Units	LH18/24-SP140_110921 11/9/21
Location Description		**GWTP – Collected from a spigot on the influent to TK-140. Sampled Monthly.**
Metals (6020A)		
Selenium	mg/L	< 0.00250 U
Silver	mg/L	< 0.000500 U
Hexavalent Chromium (7196A)		
Hexavalent Chromium	mg/L	< 0.0100 U
Perchlorate (6850)		
Perchlorate	µg/L	**8,400**

mg/L - milligrams per liter

µg/L - micrograms per liter

U- Undetected: The analyte was analyzed for, but not detected and reported to the limit of detection.

Subject: Final Minutes, Quarterly Restoration Advisory Board (RAB) Meeting
Longhorn Army Ammunition Plant (LHAAP)
Location of Meeting: Conference Call
Date of Meeting: October 20, 2021, 6:00 PM Central Daylight Time (CDT)

Meeting Participants:

Army BRAC:	Rose M. Zeiler
USACE:	Aaron Williams, Chelsea Montoya
USAEC:	Ana C. Nieves, Lena Sierocinski
Bhate:	Kim Nemmers, Zach Beck
APTIM:	Bill Foss
HDR, Inc.	Philip Werner
TLI:	Kyra Donnell, Brian Gentry
USGS Liaison:	Christopher Braun
USEPA Region 6:	Brian Follin, Janetta Coats
TCEQ:	April Palmie
USFWS:	Paul Bruckwicki
RAB:	Present: Deon Hall, John Fortune, Sharon McAvoy, and Charles Dixon Absent: Donna Burney, Judy VanDeventer, Terry Britt; John Pollard, Jr.; Tom Walker; Richard LeTourneau; and Nigel R. Shivers
Public:	USEPA Technical Advisory Group: George Rice (Caddo Lake Institute [CLI]) and Laura-Ashleigh Overdyke (CLI)

A color copy of the slide presentation and handouts (see list at end of meeting minutes) were provided for meeting attendees.

Welcome and Introduction
Ms. Rose Zeiler explained that slides were included for abbreviations, acronyms, and agenda.

Minutes (July 2021 RAB Meeting)

Ms. Zeiler asked for any comments or additions to the RAB meeting minutes from the July 2021 conference call. Based on no additional input, Ms. Zeiler asked for a motion to approve. Mr. John Fortune made a motion to approve. Mr. Charles Dixon and Mr. Deon Hall seconded the motion to approve the minutes. Ms. Zeiler stated that the minutes were approved.

Membership Update

Ms. Zeiler said that the Army is always interested in new members for the RAB. She asked if anyone knew of people that were interested in joining the RAB. No one spoke up to mention any other people who may be interested. Ms. Zeiler stated that Mr. John Pollard appears to be no longer coming to RAB meetings anymore. Ms. Zeiler explained that the Army wants the public to be informed of the LHAAP activities and site status. She encouraged the RAB members to discuss what is happening at LHAAP with the public and let her know if anyone is interested in

joining.

Ms. Kim Nemmers presented the active sites at LHAAP managed by Bhate/APTIM, HDR, Inc., and MMG-TLI Joint Venture (JV). Ms. Nemmers presented the LHAAP site map, which shows the locations of each site within LHAAP.

Documents in Progress

Ms. Nemmers discussed the documents currently in progress. Ms. Nemmers explained that remedies have been put in place for most of the sites included in the Bhate contract. Ms. Nemmers explained that following implementation of remedies, there is periodic monitoring of the remedy performance, which is called Remedial Action Operation or RA-O. She explained that following implementation, RA-O is completed more frequently (quarterly) and that the sampling frequency is decreased over time to semi-annual and annual, which is why the type of events have the different frequencies. Ms. Nemmers said that RA-O Reports are in progress for LHAAP-16, -37, -46, -50 and -58. Ms. Nemmers said that the Quarterly Groundwater Treatment Plant (GWTP) Report is in progress for the 3rd Quarter 2021 (July through September 2021).

Completed Field Work since Last RAB Meeting

Ms. Nemmers discussed field work completed since the RAB meeting in July 2021, including the Year 2 Quarter 3 (August 2021) Performance Sampling at LHAAP-04; the Year 2 Quarter 3 (October 2021) Performance Sampling at LHAAP-16; the Year 2 Quarter 2 Performance Sampling (October 2021) at LHAAP-50; and the surface water sampling completed in July 2021. Ms. Nemmers explained that the surface water samples from Harrison Bayou and Goose Prairie Creek were collected in July 2021 and the data is presented in the handouts included with the RAB slides.

Three Month Look Ahead – Documents by Bhate/APTIM Team

Ms. Nemmers presented the 3 month look ahead for upcoming documents to be prepared by the Bhate/APTIM team. The list of documents included the RA-O Reports for LHAAP-46 and -50 and GWTP Quarterly Evaluation Report 3rd Quarter (July through September 2021).

Three Month Look Ahead – Field Work by Bhate/APTIM Team

Ms. Nemmers presented the 3 month look ahead for upcoming field work to be performed including the Year 2 Quarter 4 (November 2021) Performance Sampling at LHAAP-04; the annual sampling at LHAAP-12, and semi-annual sampling at LHAAP-18/24 and -58. The 4th Quarter surface water sampling will be completed when there is flow in the bayous.

GWTP Update

Ms. Nemmers presented an update on the operation of the GWTP including monthly treated groundwater discharged to the Harrison Bayou. She explained that the GWTP was over 20 years old and required regular maintenance, the details of which are not always presented to the RAB. However, the recent maintenance of the sand filter was presented to demonstrate the extent and size of the maintenance at times.

Ms. Nemmers explained how groundwater is pumped from the Burning Grounds site LHAAP-18/24 and from LHAAP-17 (in the future) to the GWTP for treatment as presented on Slide 12. Ms. Nemmers explained that the groundwater from LHAAP-17 is not currently being sent to the GWTP but is likely to begin in early 2022. Ms. Nemmers explained how metal precipitation was completed, noting that very low levels of metals were present in the extracted groundwater. She explained that the polymer was added to precipitate out the metals which was collected by the clarifier before going to the sand filter. Some of the polymer remains on the water such that it is captured by the sand filter. Over time, the sand filter gets clogged and has to be replaced. Ms. Nemmers then showed the crane used to place the new sand into the filter. She explained that two different types of sand had to be placed into the filter per the manufacturer's specifications. Mr. Fortune asked if the sand filter was gravity fed or under pressure. Ms. Nemmers answered that it was gravity fed.

Ms. Nemmers discussed the treated groundwater discharge on a monthly basis by explaining that the chart presented in the slides and handout shows water from both the INF pond as well as the GWTP. Ms. Nemmers explained that the low volume of water discharged was due in part to the performance of the sand filter restricting flow over the past several months. The surface water sample results continue to be very low level if detected; the handout provides the actual data.

LHAAP-16

Mr. Bill Foss presented the location of LHAAP-16 and the completed biobarriers just west of the Harrison Bayou. Mr. Foss said that Biobarrier 1 is adjacent to where Landfill 16 is located. Then there are a series of biobarriers intended to intercept the groundwater for treatment. The area shaded in yellow is what is called the Mid-Plume Area. A grid of injections within the yellow shaded area were completed for the shallow zone within the Mid-Plume area. Injections were also performed in the intermediate zone in the Mid-Plume Area. Emulsified Vegetable Oil (EVO) was the substrate injected to create the biobarriers.

Mr. Foss discussed well 16IW09 located within the Biobarrier 1 and monitoring well 16WW29 located slightly downgradient of the biobarrier. Mr. Foss explained that he would present each barrier by explaining what was being observed within the biobarrier and then what was occurring downgradient of the barrier. He explained that the first monitoring performance monitoring event occurred in April 2020 following the injections that were completed right at the end of 2019, to create the biobarriers. Then groundwater was sampled every three months after the injections, so the graphs include 6 quarters of monitoring though July 2021. The dark blue line is the groundwater elevation on each figure. The light blue line is the perchlorate concentration. The darker red of the lines is trichloroethylene (TCE). Vinyl chloride (VC) and cis-1,2-dichloroethene (DCE) are also presented on each graph and are daughter products from the breakdown of TCE.

For 16IW09 and 16WW26, an increase in the 2nd quarterly event occurred, but then dramatic decrease of contaminants of concern (COCs) to below the maximum contaminant level (MCL) occurred. Mr. Foss pointed out the slight increase in TCE and DCE in latest sampling event results. Due to the treatment approach being a biobarrier, Mr. Foss explained that some slight

fluctuations are expected. Monitoring well 16WW26 had TCE fluctuate, but then dropped to 26 micrograms per liter (µg/L), which is slightly above the MCL of 5 µg/L.

Mr. Foss presented the graphs for 16IW03 and 16PM09 in Biobarrier 2. For Biobarrier 2 results, a similar trend was observed with an initial increase and then continual decrease of the COCs at 16IW03. Mr. Foss explained that while COCs are still above the MCL this is exactly what is expected with the degradation of TCE. Mr. Foss pointed out that monitoring well 16PM09, which is downgradient of the barrier, has a similar pattern with continued decreasing trends.

Mr. Foss presented the graphs for 16IW10 and 16RW10 in Biobarrier 3. For Biobarrier 3, Mr. Foss pointed out that from July 2020 and July 2021 the TCE decreased dramatically with the daughter products increasing but then both daughter products drop off over time within Biobarrier 3. Monitoring well 16RW10 is located fairly close to the barrier so you see an initial decrease but then the January 2021 TCE increased. Mr. Foss said that this well will be watched over time.

For the shallow mid plume, there are no specific upgradient/downgradient monitoring locations. Monitoring well 16EW01 received substrate injections and we see a similar pattern as with other wells. Monitoring well 16WW30 demonstrates that all the COCs have decreased with TCE just above the MCL at 12 µg/L. Mr. Foss said that COC reductions are occurring within the treatment area; however, there are increasing trends for the COCs being observed downgradient of the treatment area. Mr. Foss explained that extraction wells were previously operating within the Mid-Plume Area as part of an interim remedy to contain the plume, which minimized the potential for plume migration. So some migration following elimination of the extraction is not unexpected.

For the intermediate Mid-Plume Area, injections were completed within the smaller yellow box. The largest decrease in COCs was observed in 16EW08, with groundwater detections remaining below MCLs. Mr. Foss said that monitoring well 16WW49 has a pattern of degradation to daughter products.

For the Bayou Biobarrier near Harrison Bayou, groundwater in this area has shown some fluctuations in groundwater flow direction. He said that the COCs are all near MCLs in the Bayou biobarrier. For monitoring well 16WW40 downgradient of the biobarrier, an increase in TCE was observed that will need to be assessed further.

Mr. Foss discussed the two monitoring wells installed across the bayou, which were delayed in installation due to presence of standing water. He pointed out the data gap from April and July 2020 when the wells could not be sampled due to the area being wet and trees being down, such that the wells were not accessible. However quarterly sampling has been occurring since that time. The two wells had COCs (TCE) increase in early 2021 and now the detections are decreasing. Mr. Foss said that there has been a question about how the groundwater flows under the bayou and so it will be interesting to see the trends for the COCs over time in the wells across from the bayou.

In summary, Mr. Foss said that the biobarriers are reducing COCs to below the MCLs.

Fluctuations in COC trends are being observed downgradient of the biobarriers, and time will be needed to better understand the trends. He continued by stating that the analytical results trends are what is expected for the remedy.

Mr. George Rice stated that the results look very good. He said that a few years ago the estimated time to cleanup LHAAP-16 was over 100 years. He then asked if the cleanup time had been updated based on these results. Mr. Foss said that no calculations have been done due to the limited data and fluctuations being observed. Once we get a little further along, Mr. Foss explained that sufficient data will be available to understand the concentrations trends and the recalculate the cleanup time. Mr. Foss then explained that the biological treatment was designed to keep the plume from getting to the bayou and that some level of contamination may continue to be released from the landfill.

LHAAP-04

Mr. Foss was asked by Ms. Zeiler to discuss LHAAP-04, which is a former pilot wastewater treatment plant by the fire station. Mr. Foss said that the site had a perchlorate plume groundwater that received substrate injections in November 2019 also. He said that one well had perchlorate above the cleanup goals in the first sampling event following the injections. However, since that first event perchlorate has been below the Protective Concentration Level (PCL) for the 6th quarter in a row. Additionally, in the latest sampling event in July 2021 perchlorate was non-detect in all wells for the first time. Mr. Foss explained that we are continuing to see low DO and negative ORP so that with those conditions we expect that degradation will continue for any residual mass.

Surface Water

Ms. Nemmers presented the surface water sampling results and stated that there were no exceedances to report.

HDR: LHAAP-18/24, -29, and -47

Mr. Philip Werner discussed an overview of the sites where HDR, Inc. is completing investigations. The Army Draft of the Pre-Design Investigation (PDI) Report for LHAAP-18/24 has been prepared and under review and will then go to the Regulators for review at the end of October 2021. The draft LHAAP-18/24 remedial design (RD) is due to the Regulators in February 2022. LHAAP-29 is currently on hold due to reanalysis of data and obtaining additional data due to data gaps identified. The LHAAP-29 PDI Report will be due to Army in June 2022 followed by the draft RD in September 2022. Mr. Werner stated that the Draft Revised Record of Decision (ROD) for LHAAP-47 is being reviewed by the regulators.

Mr. Werner then presented the investigation this past spring/summer at LHAAP-18/24. He explained that direct push technology (DPT) borings were used to place temporary wells. Four new monitoring wells were installed in the area based on the results of the temporary wells groundwater data. He then presented summary of the analytical results from the investigation outside of the northeast boundary of the interceptor collection trench (ICT). Perchlorate was

detected at each of the 17 sample locations from the temporary wells. Thirteen of the samples exceeded the Texas Risk Reduction Program (TRRP) Tier 1 PCL for residential groundwater use. Nine of the perchlorate detections exceeded 5,000 parts per billion (ppb). TCE and daughter products were also detected in groundwater. Perchlorate is the most predominant of the compounds found in soils. Tetrachloroethylene (PCE), TCE and methylene chloride (MC) were also detected in the soil samples collected outside of the northeast ICT boundary.

Mr. Werner then explained that contamination is centered in the area defined by the purple dashed lines north of the LHAAP-18/24 where the proposed RD is planned. He pointed out that elevated concentrations are on either side of the planned RD area but northeast (also hydraulically downgradient), the concentrations decrease. The soil results support that mass is present and contributing to the high concentration levels in groundwater. Data collected will be used to assess the remediation design features. The additional investigation completed in the shallow aquifer zone where in-situ bioremediation (ISB) grids are planned includes groundwater locations where DPT borings were advanced and then two monitoring wells were installed. Perchlorate was detected in groundwater with seven samples having detections above 20,000 ppb. Volatile organic compounds (VOCs) were also above the MCLs and included 1,1,2-trichloroethane; benzene; DCE; MC; PCE; TCE; and VC. The highest concentrations of perchlorate are in the proposed RD treatment areas and then migrate to the southwest.

For LHAAP-29, the analytical laboratory (lab) had detection limits for explosives above the screening limits. However, a third-party lab was able to get below the screening limit based on a subset of the samples. Therefore, a second set of soil samples were sent to the third-party lab, which included 90 samples. Analytical results have been received and are being reviewed to develop the path forward. Mr. Fortune asked where the 90 samples were collected. Mr. Werner stated that multiple samples were collected from each DPT boring locations, with typically four soil samples per locations at different depth intervals to capture the vertical extent. The subset of data was selected based on the initial results and locations of the samples.

Ms. Laura Ashley Overdyke asked if seasonal fluctuations could affect the RD and if there is sufficient information to move forward. Mr. Werner said that the data collected for the groundwater occurred in early spring, when the water table was high. Mr. Werner said he would expect the results to be some of the most elevated regardless of seasonal variation. Ms. Nemmers then stated that groundwater is collected from LHAAP-18/24 on a semi-annual basis from permanent monitoring wells also and that this data will be used to support the RD. Mr. Werner concurred that his data is being used for the RD.

LHAAP-17 Remedial Action

Ms. Kyra Donnell presented the remedial action of excavation for various areas, followed by backfilling of the areas. She explained what work had been completed when a work stoppage occurred in 2019 due to munitions hazards being identified. Ms. Donnell explained that it was then determined that a time critical removal action was needed. On October 4, 2021, the work plan was approved and is currently being implemented. Site survey and vegetation removal has been completed. Erosion control measures are in place, and the backfill sources have been

analyzed and verified to be acceptable. Excavation areas are dramatically impacted due to precipitation. Ms. Donnell explained that much of the water has evaporated, but some areas still had water so discharging has been completed to assist in drying out the area. One area remains to be drained. Backfilling has occurred where areas are deemed clean. A screening and sift plant is being set up but is not completely installed. Ms. Donnell said when remote operations are being conducted, an explosives safety arc is established. Non-essential personnel are not allowed within the explosives safety area. Soils removed will be screened by the sift plant. Existing soil stockpiles in and around the site will also be moved through the sift plant. Any soil that is processed through the sift plant will be staged for offsite disposal. Once the sifting is done and the excavation and backfilling completed, metallic debris on the surface will be removed and a digital geophysical mapping of the site will be completed. If any targets of interest are identified during the mapping, then the targets will be investigated and removed. Once the site is determined to be clear of munitions items, a groundwater extraction system will be installed as the last activities.

Ms. Donnell then explained the segregation of materials by type. She stated that all munitions related debris would be inspected to verify no explosive hazard remains and document as safe (termed as MDAS) and temporarily store for later disposal off-site by a qualified vendor who will provide a certificate of destruction. Also, all non-munitions related debris would be temporarily stored for off-site disposal.

Ms. Donnell explained munitions and explosives of concern (MEC) will be inspected and stored properly onsite. If more than one MEC item is found, then a consolidation shot will be completed. Locations where MEC is encountered will be sampled along with where a detonation occurs. Sampling within the excavation to ensure that the contaminated material is removed. Standards below the cleanup levels will be confirmed. Site restoration will then occur. Exclusion zones were presented for the safety arc for non-essential personnel. Ms. Donnell presented photographs of the screening and sifting equipment that is currently being installed to segregate the soil from the other debris.

Ms. Donnell presented a figure that showed the areas in brown where excavation is continuing and the location of existing soil piles. She provided a photograph showing water in the impounded areas along with a stockpile area.

Ms. Zeiler asked Ms. Donnell about exposure noise and published information. Ms. Donnell said that a notice regarding the planned detonations had been published in the Marshall News Messenger and Shreveport Times. She explained that this work could continue through December 2021. Ms. Donnell said that a USACE module for determining the depth to bury the items to mitigate the fragments that would be blown, and also for noise reduction is being used. Ms. Janetta Coats asked about the notice. Ms. Zeiler said she has not yet sent it out. Ms. Donnell said that the notice is also on the LHAAP website. Ms. Zeiler said she would send out the notice to the RAB. Ms. Coats asked if the notice had a contact. Ms. Zeiler said the notice does have that information.

Next RAB Meeting Schedule and Closing Remarks

Ms. Zeiler then discussed the next meeting with the RAB members. It was decided that the next RAB meeting will be held on Wednesday, January 19, 2022. Ms. Zeiler said that Mr. Rice would be speaking about metals at LHAAP. Ms. Overdyke asked about the meeting being in person. Ms. Zeiler said that was the plan but it will depend. Ms. Overdyke expressed her interest to have it in person so that people can attend even if that means masks and similar precautions be necessary. Ms. Coats said the USEPA had an all hands meeting canceled in November regarding green light to go in the field. Her organization still has restrictions that do not allow for travel unless an emergency. Ms. Zeiler said that an in person meeting is still likely.

Ms. Zeiler asked if there is anything that the RAB members want to hear more about. Mr. Fortune asked if LHAAP-04 was the old power plant. Ms. Zeiler responded no but it is next to the old power plant. She explained that a large soil removal occurred at LHAAP-04 in 2009 for perchlorate, and now the groundwater seems to be looking good. Ms. Zeiler said that LHAAP-04 can be presented at the next RAB Meeting.

Adjourn

The meeting adjourned at 7:24 pm CDT.

October 2021 Meeting Attachments and Handouts:

- Color copy of Bhate presentation slides
- GWTP – Processed Groundwater Volumes Handout
- Surface Water Sampling Handout

Longhorn Army Ammunition Plant Quarterly Restoration Advisory Board Meeting

October 20, 2021
6:00 PM CDT

APTIM

bhate

Restoration Advisory Board Meeting

Abbreviations and Acronyms

µg/L	Micrograms per liter
COC	Chemical of concern
DCE	Dichloroethene
DERP	Defense Environmental Restoration Program
DPT	Direct push technology
GPW	Goose Prairie Creek Water Sample
GWP-Ind	Industrial Groundwater Use Protection
$^{GW}GW_{Ing}$	Residential groundwater use
GWTP	Groundwater Treatment Plant
HBW	Harrison Bayou Water Sample
ICT	Interceptor collection trench
ISB	In-situ bioremediation
J	Estimated laboratory value
LHAAP	Longhorn Army Ammunition Plant
MC	Methylene chloride
MCL	Maximum Contaminant Levels
MDAS	Material Documented As Safe
MEC	Munitions and explosives of concern
MPPEH	Material Potentially Presenting an Explosive Hazard
MSC	Medium-Specific Concentration
PCE	Tetrachloroethene
PCL	Protective Concentration Level
RAB	Restoration Advisory Board
PDI	Pre-Design Investigation
RA(O)	Remedial Action Operation
TCE	Trichloroethene
TCEQ	Texas Commission on Environmental Quality
TNT	Trinitrotoluene
TOI	Targets of interest
TRRP	Texas Risk Reduction Program
VC	Vinyl chloride
VOC	Volatile organic compound

Restoration Advisory Board Meeting

Agenda

06:00 Welcome and Introduction

06:05 Open Items {RMZ}
-Purpose of the Restoration Advisory Board (RAB) Meeting
-Ongoing Outreach/Website
-RAB Administrative Issues
- o Membership Update
- o Minutes (July 2021 RAB Meeting)

06:15 Defense Environmental Restoration Program (DERP) Update {Bhate}
- Documents and Field Work Completed since last RAB
  - o LHAAP-16 Performance Sampling
- Three Month Look Ahead
- Groundwater Treatment Plant (GWTP) Update

06:30 Other DERP Update
-LHAAP-18/24, -29, and -47 Status {HDR}
-LHAAP-17 Status {MMG-TLI}

06:55 Next RAB Meeting Schedule and Closing Remarks {RMZ}

Restoration Advisory Board Meeting

RAB Administrative Issues

- Membership Update
  - Persons interested in being new members
- Minutes (July 2021 RAB Meeting)

Restoration Advisory Board Meeting

The Army Wants You to be Informed

- The Army is committed to protecting human health and the environment; key to that commitment is engaging the community and increasing public participation in environmental restoration at the Longhorn Army Ammunition Plant (LHAAP)
- You are encouraged to:
  - Attend RAB Meetings and/or become a member of the RAB
  - Visit the Longhorn environmental website at www.longhornaap.com.
- The website is regularly updated to indicate the upcoming field events at each site including groundwater sampling, monitoring well installations, soil sampling, or remediation activities.
  - Make suggestions for improving communication – the Army welcomes and appreciates community feedback
- There are three contractors working at LHAAP: Bhate/APTIM; HDR, Inc. and MMG-TLI Joint Venture. The work conducted by these contractors will be presented in the following slides in that order.

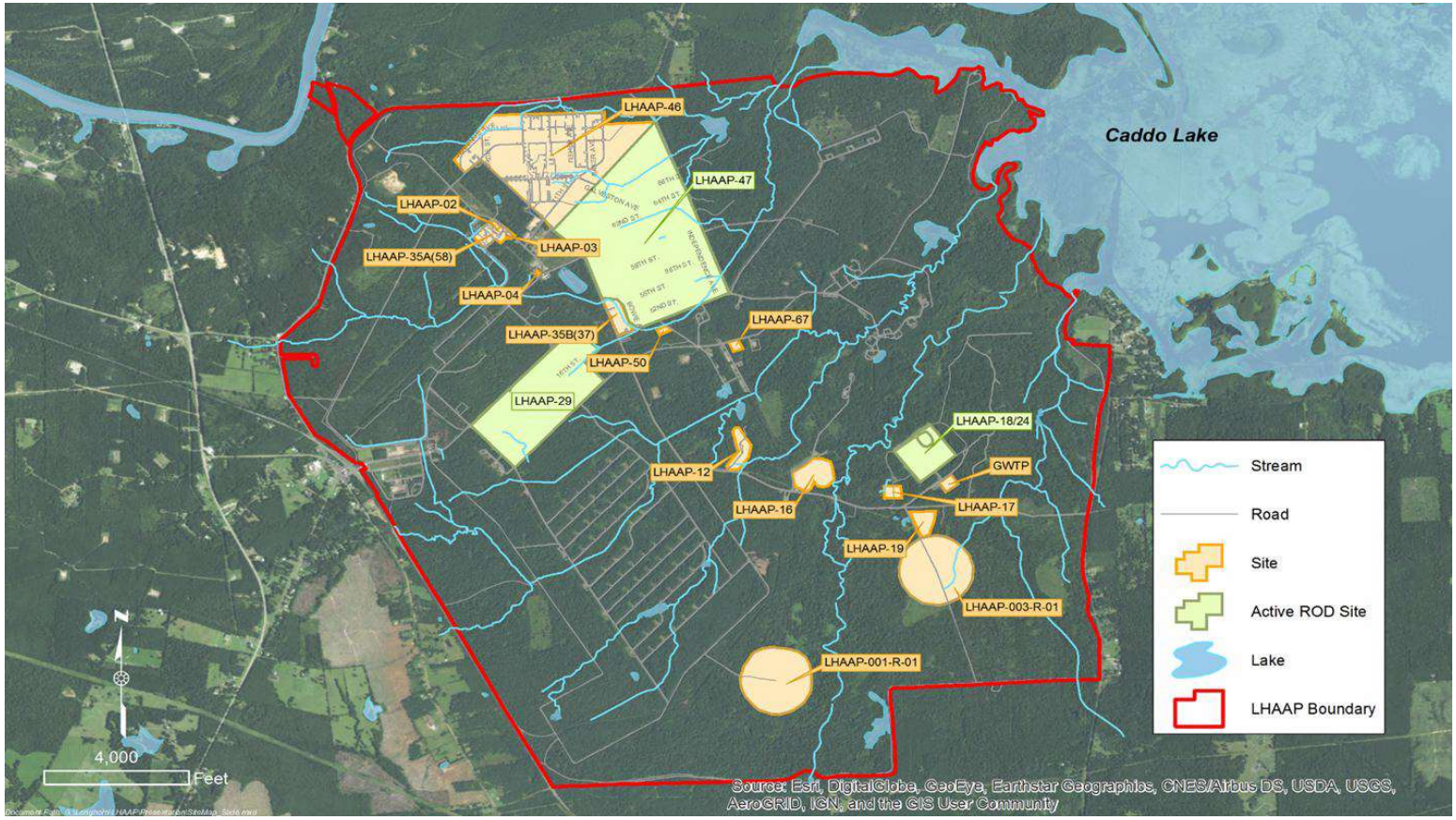
Restoration Advisory Board Meeting

LHAAP Environmental Contractors

- **Bhate/APTIM: LHAAP-02, -03, -04, -12, -16, -37, -46, -50, -58, -67, -001-R-01, -001-R-03, and -18/24 (interim remedy)**
- **HDR: LHAAP-18/24, -29, and -47**
- **MMG-TLI: LHAAP-17**

Restoration Advisory Board Meeting

Bhate/APTIM



Restoration Advisory Board Meeting

Documents in Process

Site	Document
LHAAP-16	Annual Remedial Action Operation (RA[O]) Report to Regulators
LHAAP-37	Annual RA(O) Report – to Regulators
LHAAP-46	Annual RA(O) Report – in progress
LHAAP-50	Annual RA(O) Report – in progress
LHAAP-58	Annual RA(O) Report – to Regulators
GWTP	Quarterly Evaluation Report: Third Quarter (July –September 2021) in progress

Restoration Advisory Board Meeting

Completed Field Work Since Last RAB Meeting

Site	Activity
LHAAP-04	Year 2 Quarter 3 Performance Monitoring (August); final ROD approved 2016; baseline groundwater sampling in Jan. 2018
LHAAP-16	Year 2 Quarter 3 Performance Monitoring (October); Previously sampled as part of the GWTP operations
LHAAP-50	Year 8 of RA(O) Groundwater Monitoring; Year 2, Quarter 2 Performance Sampling (October)
Surface Water	Surface Water Sampling

Restoration Advisory Board Meeting

3 Month Look Ahead – Documents by Bhate Team

Site	Document
LHAAP-46	Draft RA(O) Report to regulators
LHAAP-50	Draft RA(O) Report to regulators
GWTP and LHAAP-18/24	Quarterly Evaluation Report Third Quarter (July – September 2021)

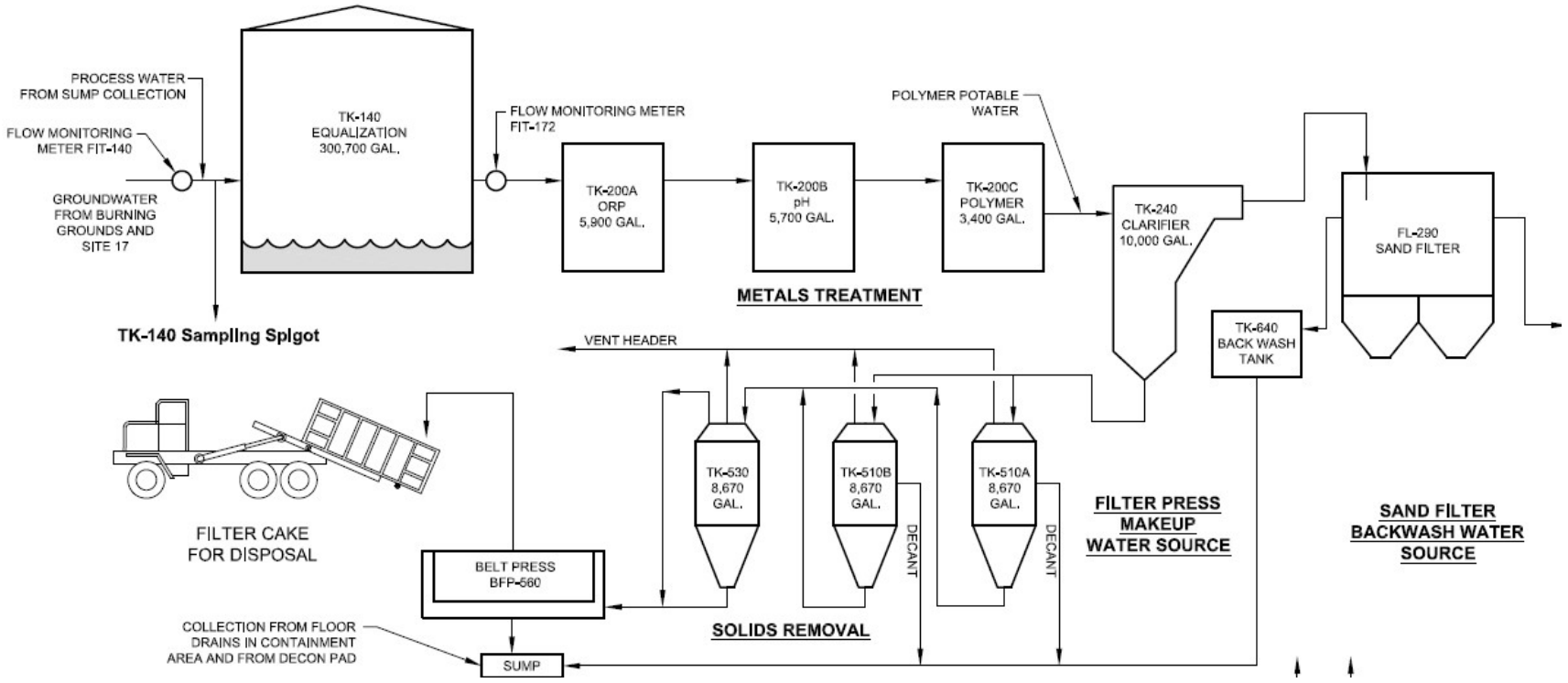
Restoration Advisory Board Meeting

3 Month Look Ahead - Field Work by Bhate Team

Site	Activity
LHAAP-04	Year 2 Quarter 4 Performance Monitoring (November)
LHAAP-12	Annual RA(O) Sampling (December)
LHAAP-18/24	Semi-Annual Groundwater Sampling (December)
LHAAP-58	Semi-Annual Groundwater Sampling (December)
Surface Water	4th Quarter Sampling

Restoration Advisory Board Meeting

GWTP Update

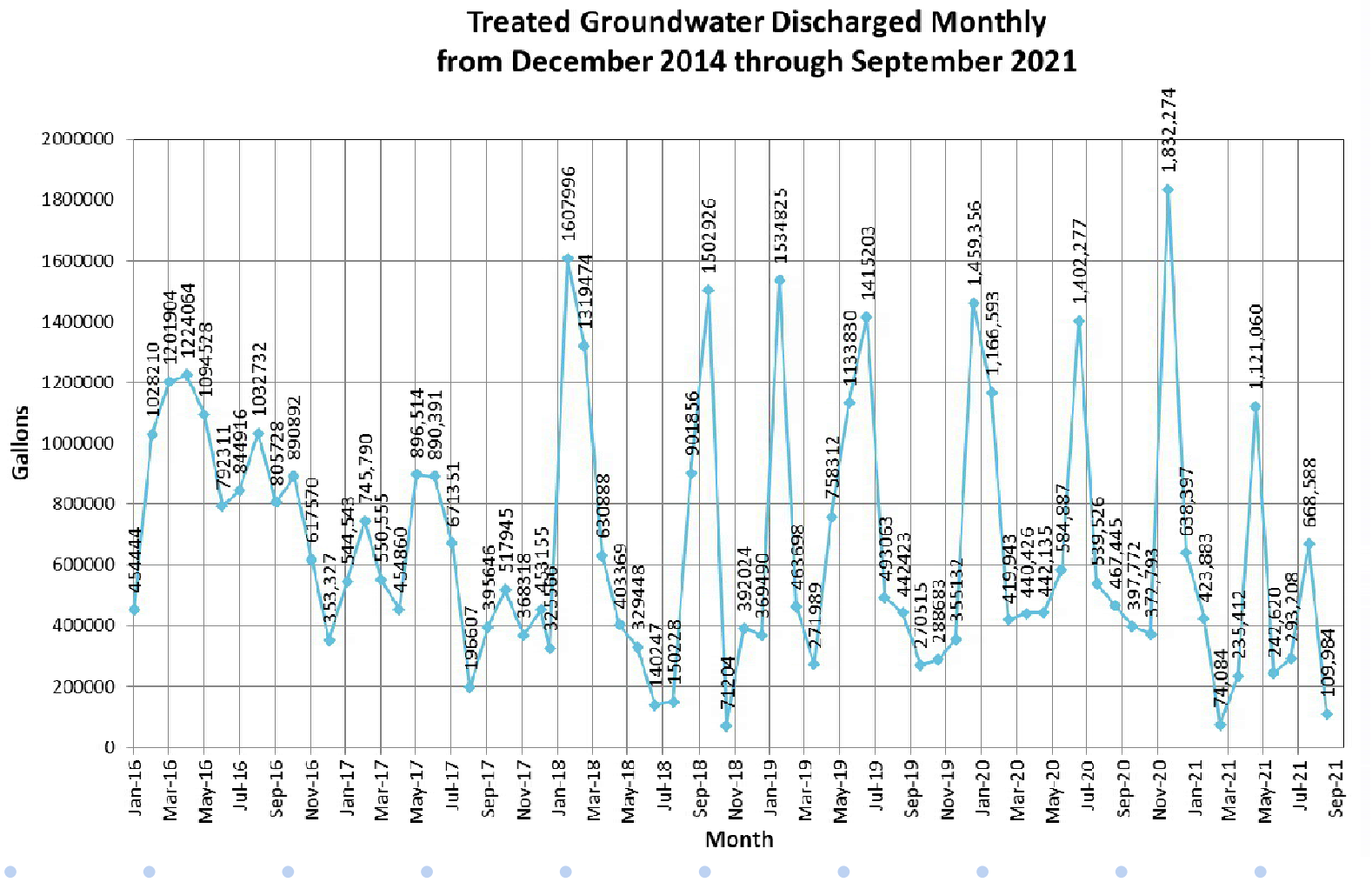


Restoration Advisory Board Meeting

GWTP Update

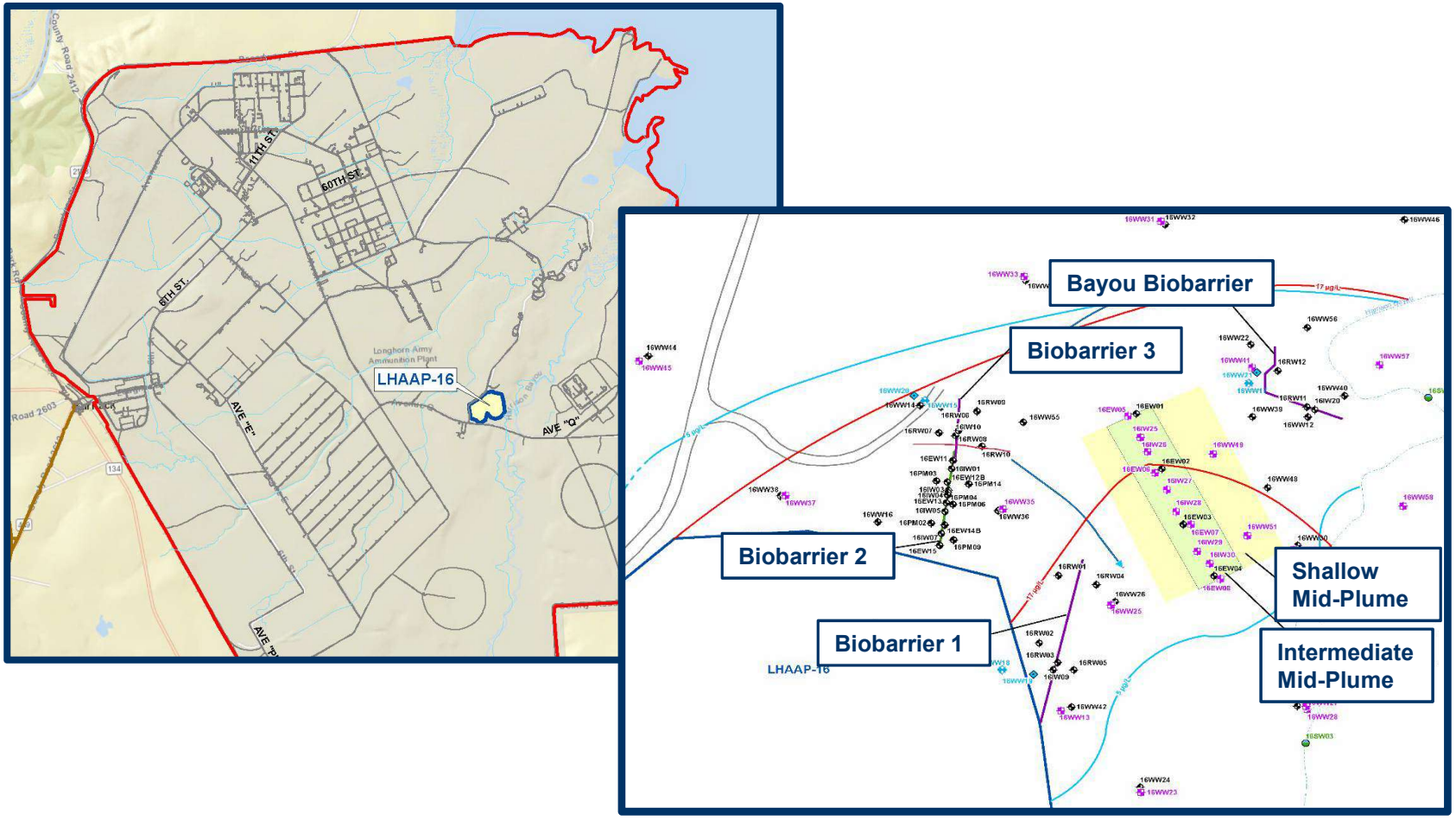
Restoration Advisory Board Meeting

GWTP Update



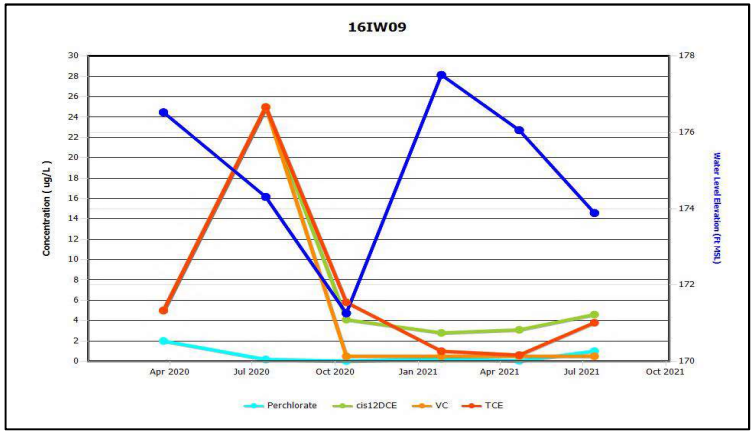
Restoration Advisory Board Meeting

LHAAP 16

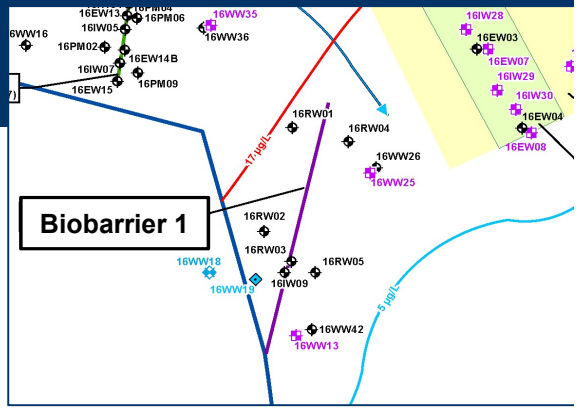


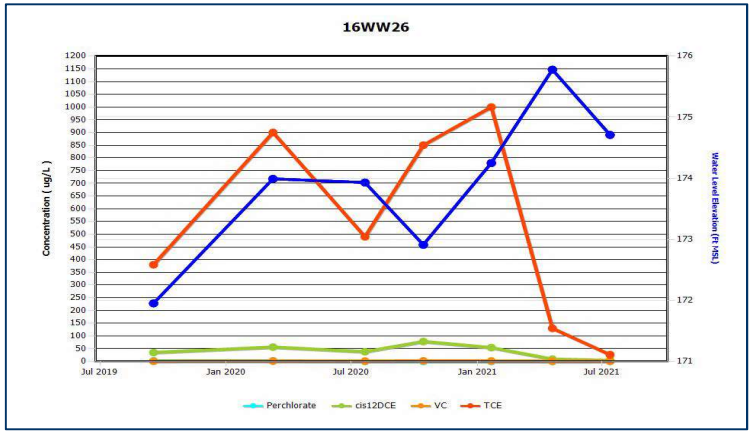
Restoration Advisory Board Meeting

LHAAP 16 Biobarrier 1



- 16IW09
- Located in the biobarrier
- All chemicals of concern (COCs) are below the Maximum Contaminant Level (MCL)
- Slight increase intrichloroethene (TCE) and cis-1,2-dichloroethene (DCE)
- Biobarrier is working as designed

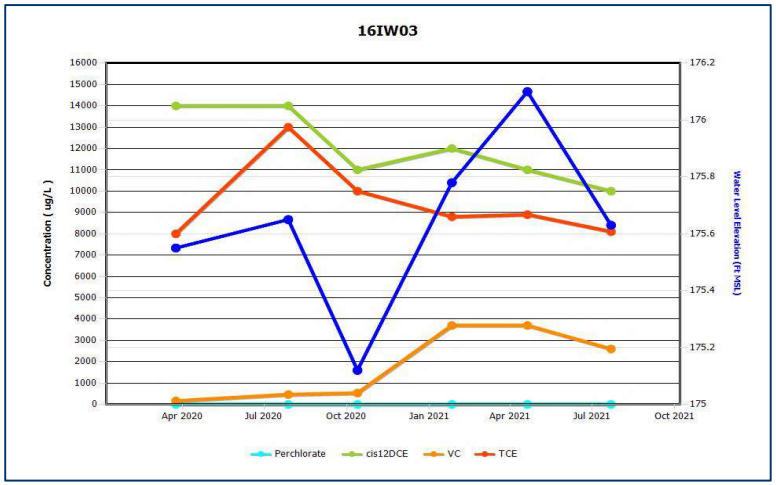


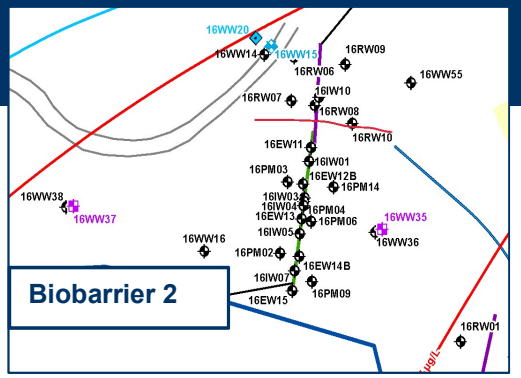


- 16WW26
- Located downgradient
- Only TCE is above the MCL of 5 micrograms per liter (µg/L) at 26 µg/L

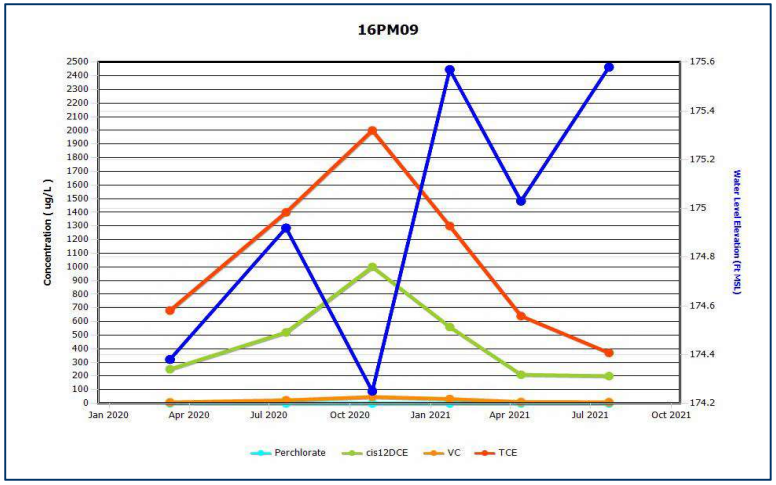
Restoration Advisory Board Meeting

LHAAP 16 – Biobarrier 2





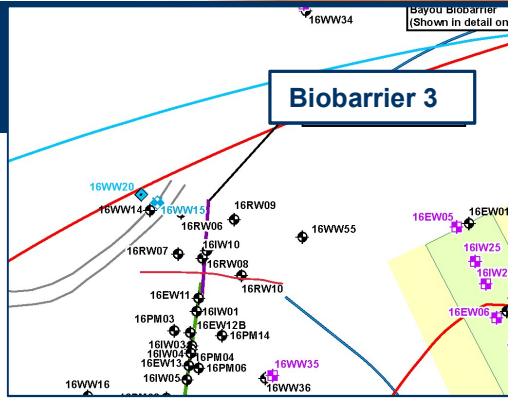
- 16IW03
- Located in the biobarrier
- TCE and cis-1,2-DCE are fluctuating
- Vinyl chloride (VC) and ethene have increased
- These trends suggest reductive dechlorination is occurring

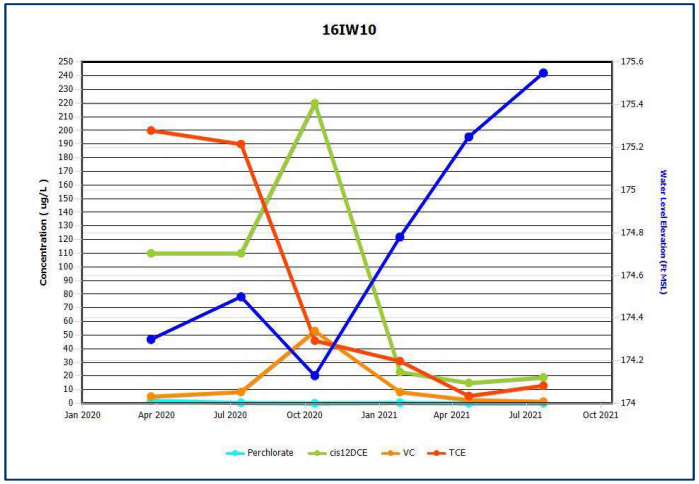


- 16PM09
- Located downgradient
- TCE, cis-1,2-DCE, and VC are all decreasing

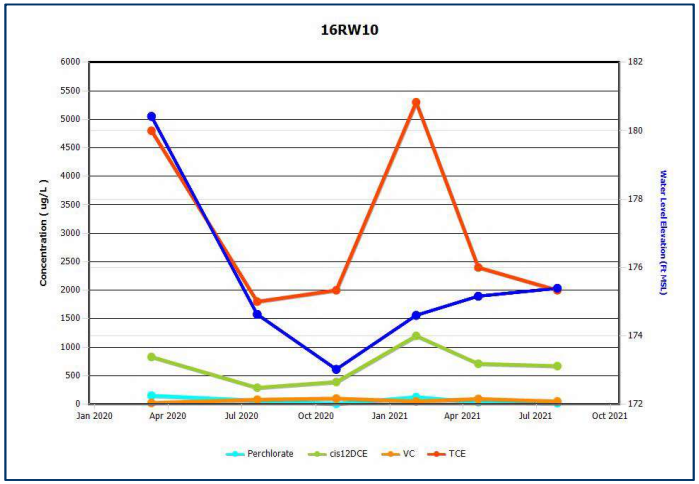
Restoration Advisory Board Meeting

LHAAP 16 – Biobarrier 3





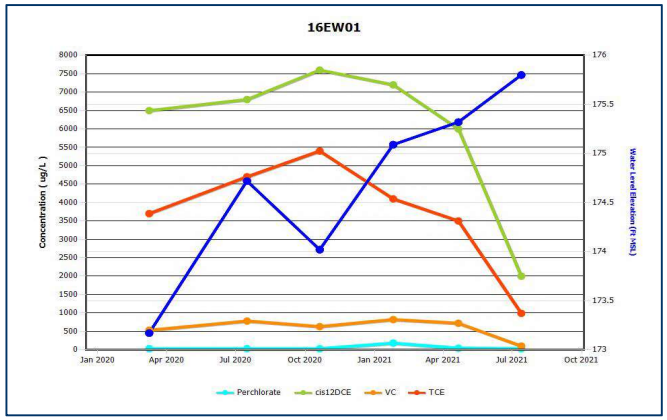
- 16IW10
- Located in the biobarrier
- Overall decreasing concentrations of all COCs
- Biobarrier is working as designed



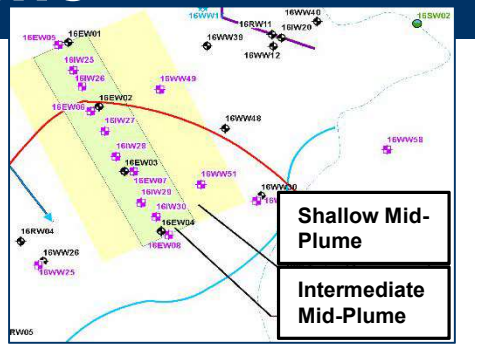
- 16RW10
- Located downgradient
- Overall decreasing concentrations of COCs

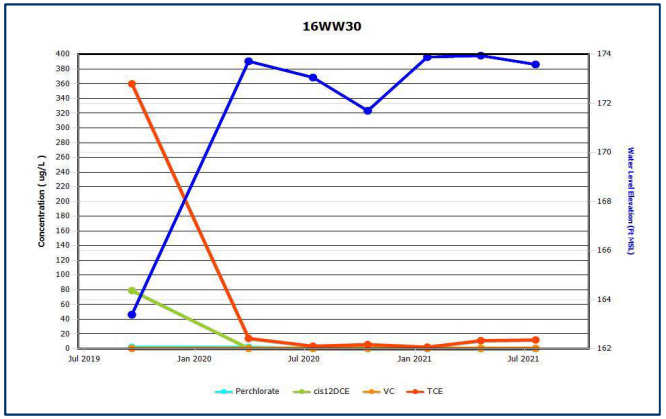
Restoration Advisory Board Meeting

LHAAP 16 – Shallow Mid Plume

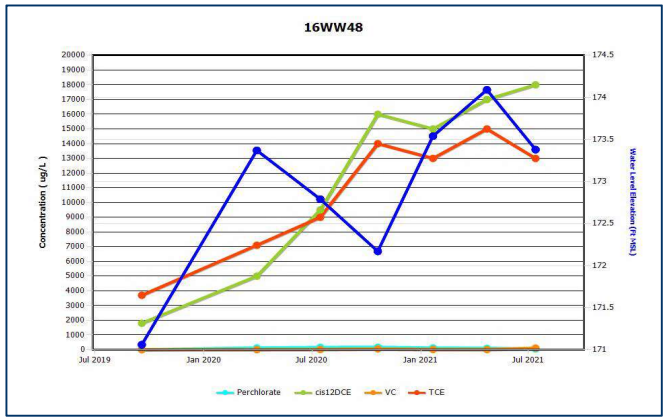


- 16EW01
- Located in the biobarrier
- All COCs are decreasing
- TCE is at 990 µg/L
- Biobarrier is working as designed





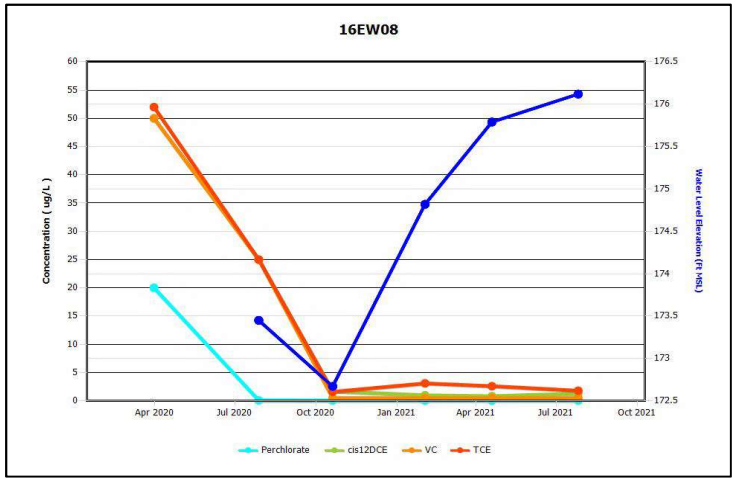
- 16WW30
- Located downgradient of the biobarrier
- All COCs are decreasing
- TCE is at 12 µg/L



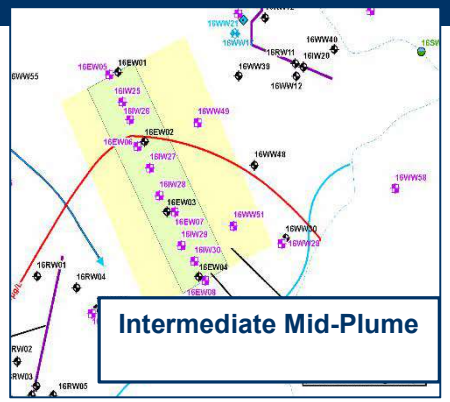
- 16WW48
- Located farther downgradient of the biobarrier beyond the influence of the extraction wells prior to injections
- COCs are increasing

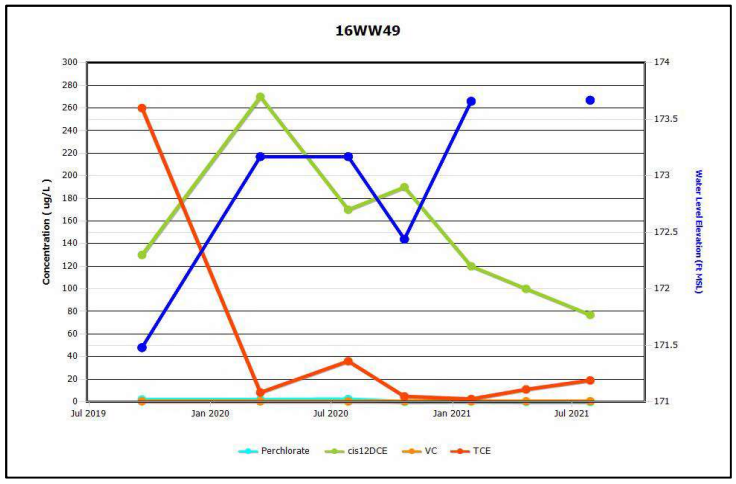
Restoration Advisory Board Meeting

LHAAP 16 – Intermediate Mid Plume



- 16EW08
- Located in the biobarrier
- Overall decreasing concentrations
- COCs are all below MCLs
- Biobarrier is working as designed

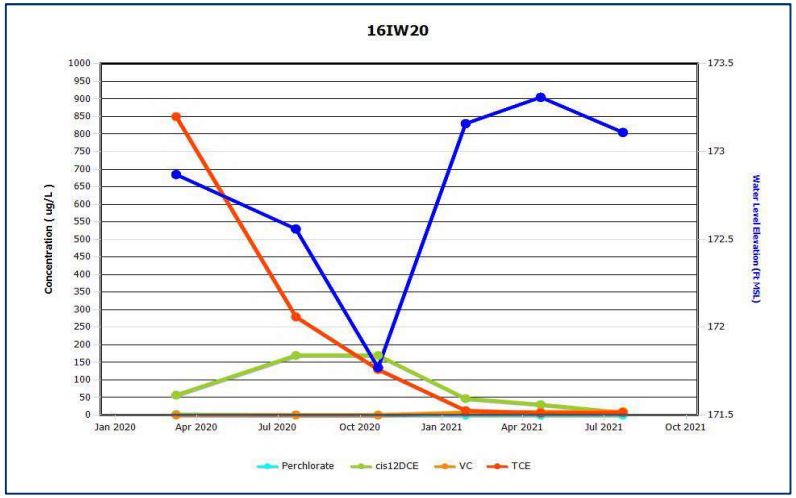


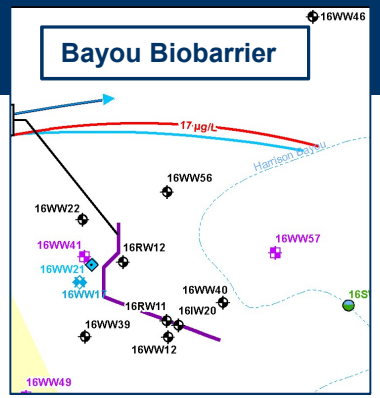


- 16WW49
- Located downgradient of biobarrier
- Overall TCE and cis-1,2-DCE are decreasing

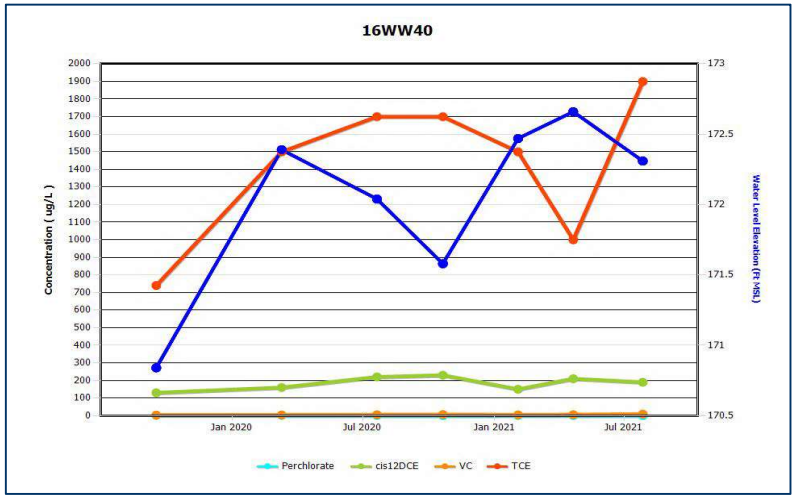
Restoration Advisory Board Meeting

LHAAP 16 – Bayou Barrier





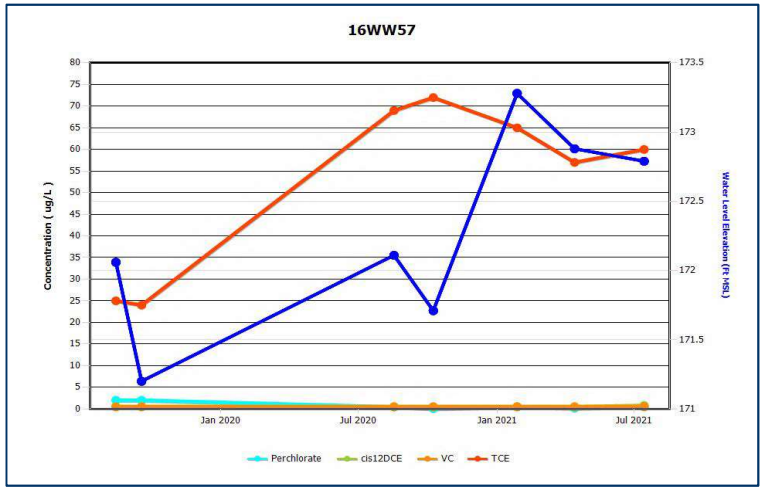
- 16IW20
- Located in the biobarrier
- Overall decreasing concentrations of COCs
- TCE is at 7.6 µg/L
- VC is at 10 µg/L
- Ethene is increasing indicating that reductive dechlorination is occurring
- Biobarrier is working as designed



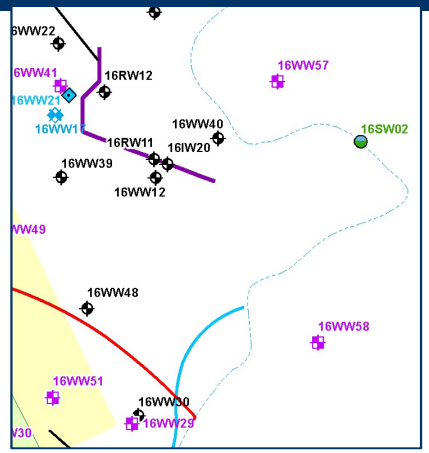
- 16IW40
- Located downgradient of Biobarrier
- TCE is fluctuating as this is farther downgradient and it will take longer for treated clean groundwater to decrease COCs

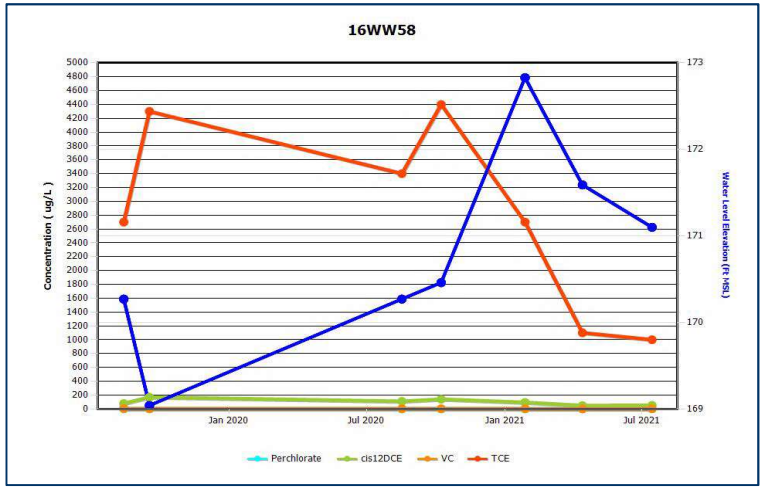
Restoration Advisory Board Meeting

LHAAP 16 – Across Harrison Bayou



- 16WW57
- Located across Harrison Bayou
- Overall concentrations are increasing
- Groundwater levels may also be contributing to concentration trend

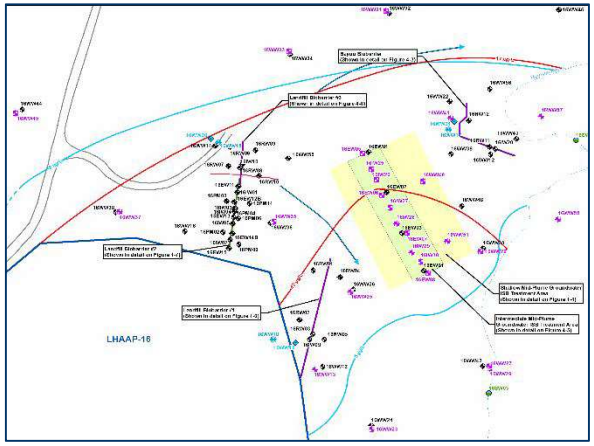




- 16WW58
- Located across Harrison Bayou
- TCE is decreasing
- All other COCs are below their MCL or detection limit.
- The treatment may be aiding in reducing concentrations
- Groundwater levels may also be contributing to concentration trend

Restoration Advisory Board Meeting

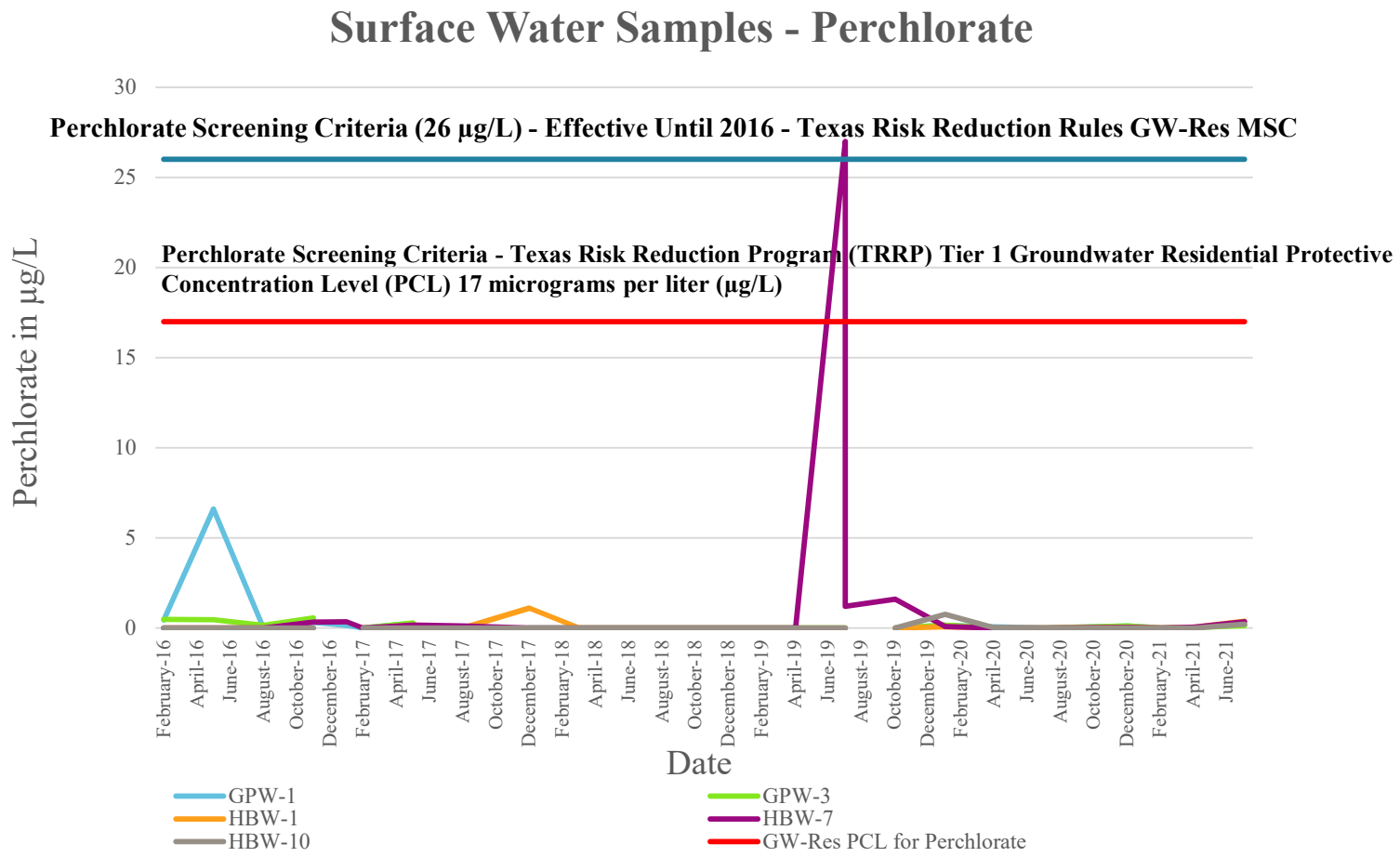
LHAAP 16 – Conclusion



- Biobarriers are reducing COCs in the barrier to below MCLs and treating groundwater that migrates through.
- Treated groundwater is migrating downgradient and reducing COCs.
- Fluctuations and increases are being observed at some wells.
- Groundwater levels may be influencing concentration trends at some locations.
- After two years of post injection data, the multiple biobarriers at LHAPP-16 are reducing COCs at the site, as designed.

Restoration Advisory Board Meeting

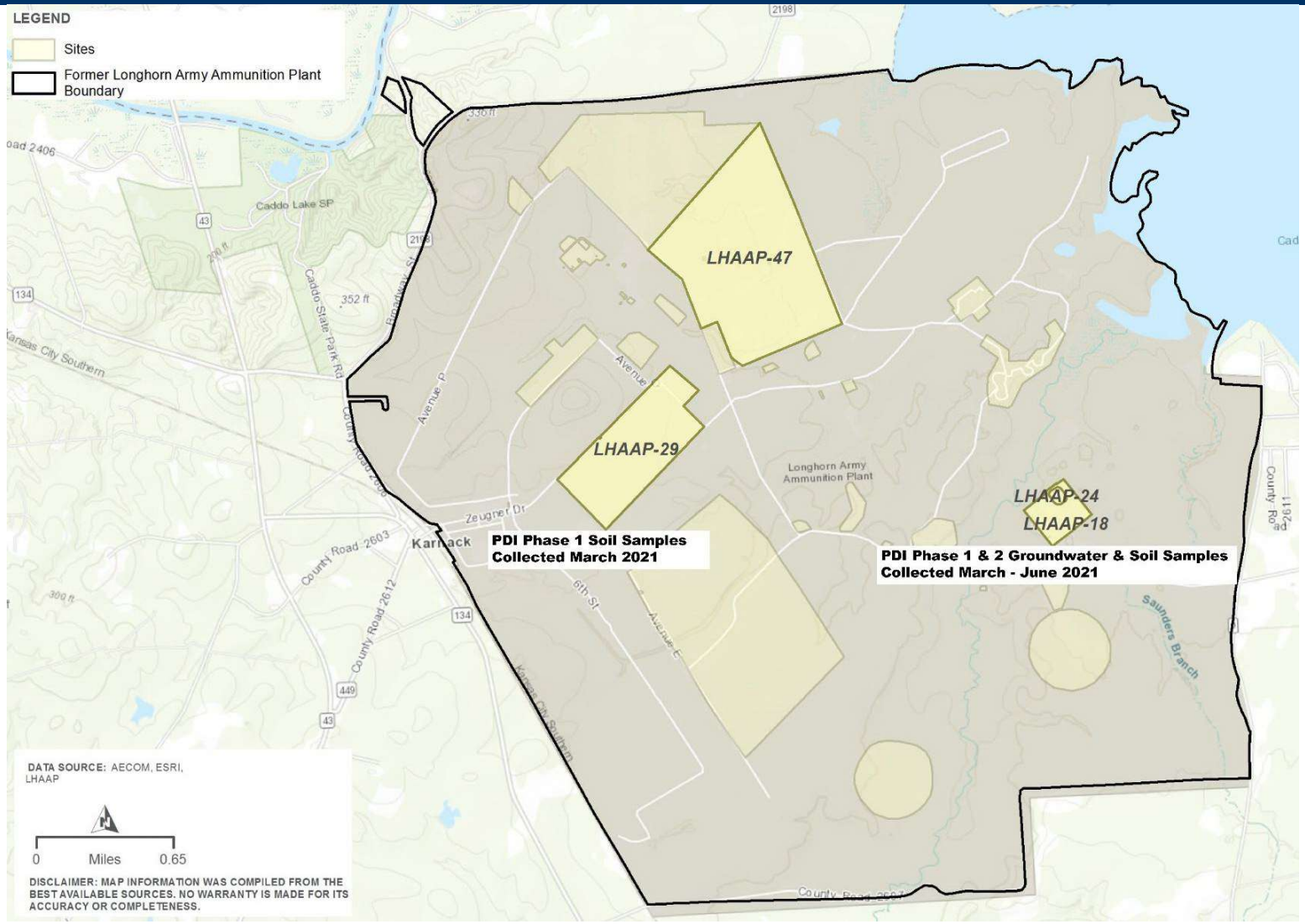
Surface Water Sample Results



Note: Surface water at HBW-7 had a detection of 27 µg/L from a sample collected on 11 July 2019. Surface water at HBW-7 was resampled 19 days later (30 July 2019) with a detection of 1.2 J µg/L.

Restoration Advisory Board Meeting

HDR



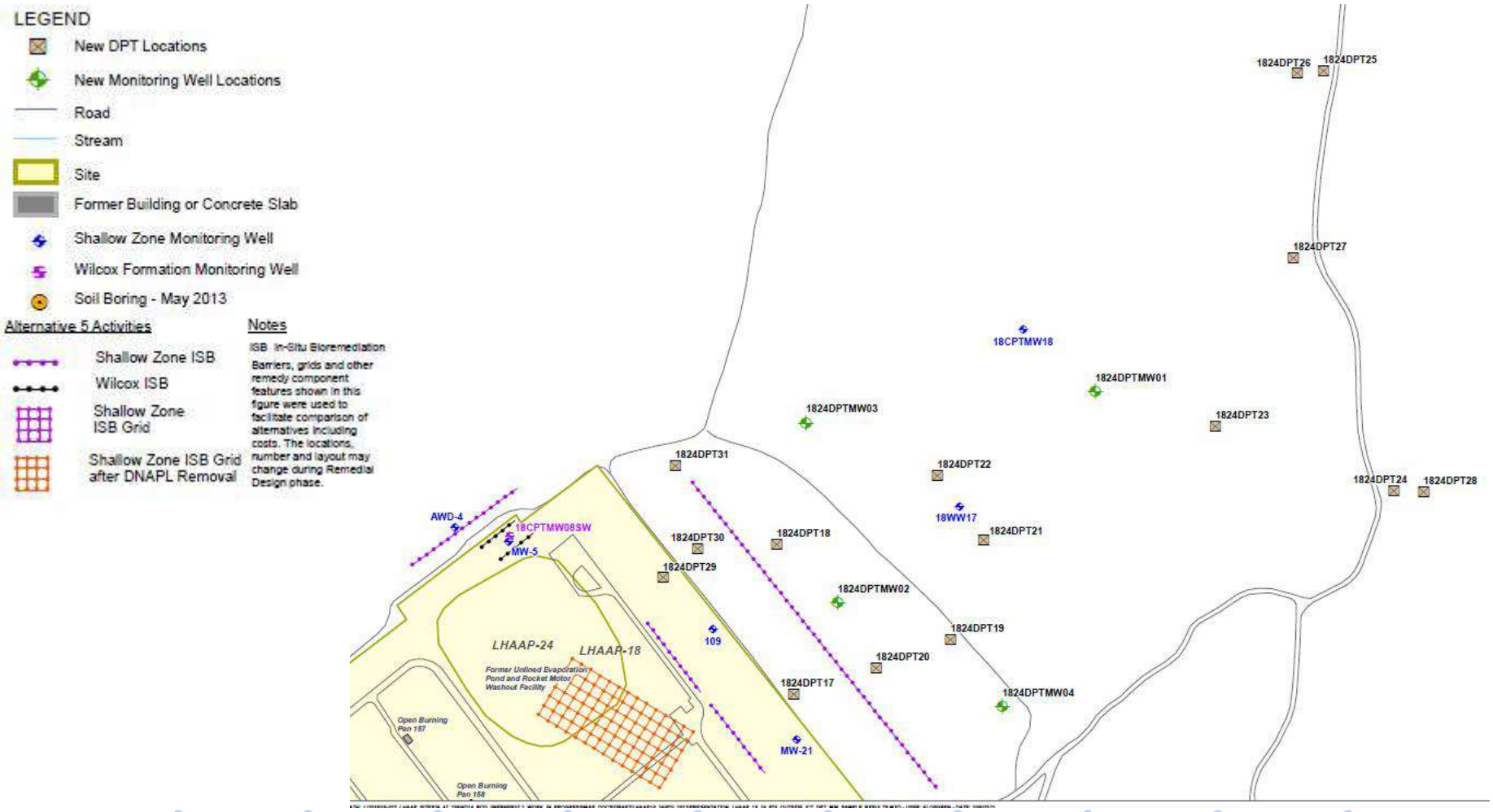
Restoration Advisory Board Meeting

LHAAP-18/24, -29, and -47 Document Status, HDR

Site	Document
LHAAP-18/24	Draft Pre-Design Investigation (PDI) Report, October 2021
LHAAP-18/24	Draft Remedial Design, February 2022
LHAAP-29	Draft PDI Report, June 2022
LHAAP-29	Draft Remedial Design, September 2022
LHAAP-47	Draft Record of Decision, September 2021

Restoration Advisory Board Meeting

DPT and Permanent Well Locations Outside the ICT Boundary



Restoration Advisory Board Meeting

Summary of LHAAP-18/24 Phase 2 PDI Field Work

- PDI Field Work Outside the Interceptor Collection Trench (ICT) Northeast Boundary, June 2021

Preliminary Findings - Groundwater

- ✓ **Perchlorate was detected in 17 of 17 temporary wells located outside the Northeast ICT Boundary. 13 samples had concentrations that exceeded the Texas Risk Reduction Program (TRRP) Tier 1 Protective Concentration Level (PCL) for residential groundwater use ($^{GW}GW_{Ing}$).**
- ✓ **Nine perchlorate detections exceeded 5,000 µg/L.**
- ✓ **The volatile organic compounds (VOCs) cis-1,2-DCE (1 out of 17 temporary wells), TCE (9 out of 17 temporary wells), and VC (2 out of 17 temporary wells) were detected at concentrations that exceeded the MCLs.**

Restoration Advisory Board Meeting

Summary of LHAAP-18/24 Phase 2 PDI Field Work

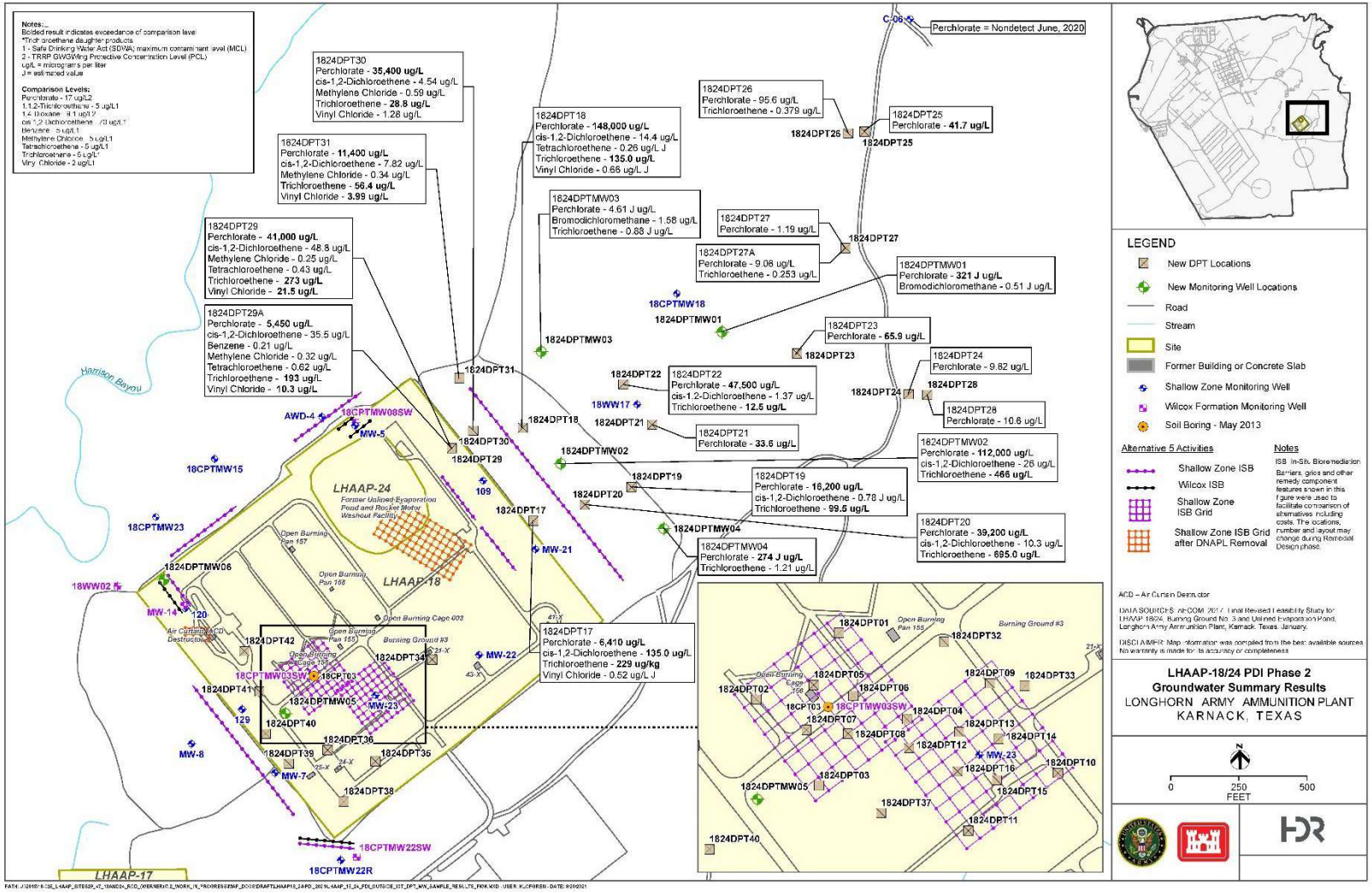
- PDI Field Work Outside the ICT Northeast Boundary, March 2021

  Preliminary Findings - Soil

  - ✓ Perchlorate was detected in 16 out of 17 direct push technology (DPT) boring soil samples collected outside the Northeast ICT Boundary; three at concentrations that exceeded the Texas Commission on Environmental Quality (TCEQ) soil medium-specific concentration (MSC) for industrial use based on groundwater protection (GWP-Ind).
  - ✓ TCE was detected in 7 out of 17 DPT boring soil samples collected outside the Northeast ICT Boundary; one at a concentration that exceeded the MSC GWP-Ind.
  - ✓ Methylene Chloride (MC) was detected in 9 out of 17 DPT boring soil samples collected outside the Northeast ICT Boundary; no samples exceeded the MSC GWP-Ind.
  - ✓ Tetrachloroethene (PCE) was detected in 1 out of 17 DPT boring soil samples collected outside the Northeast ICT Boundary; no samples exceeded the MSC GWP-Ind.

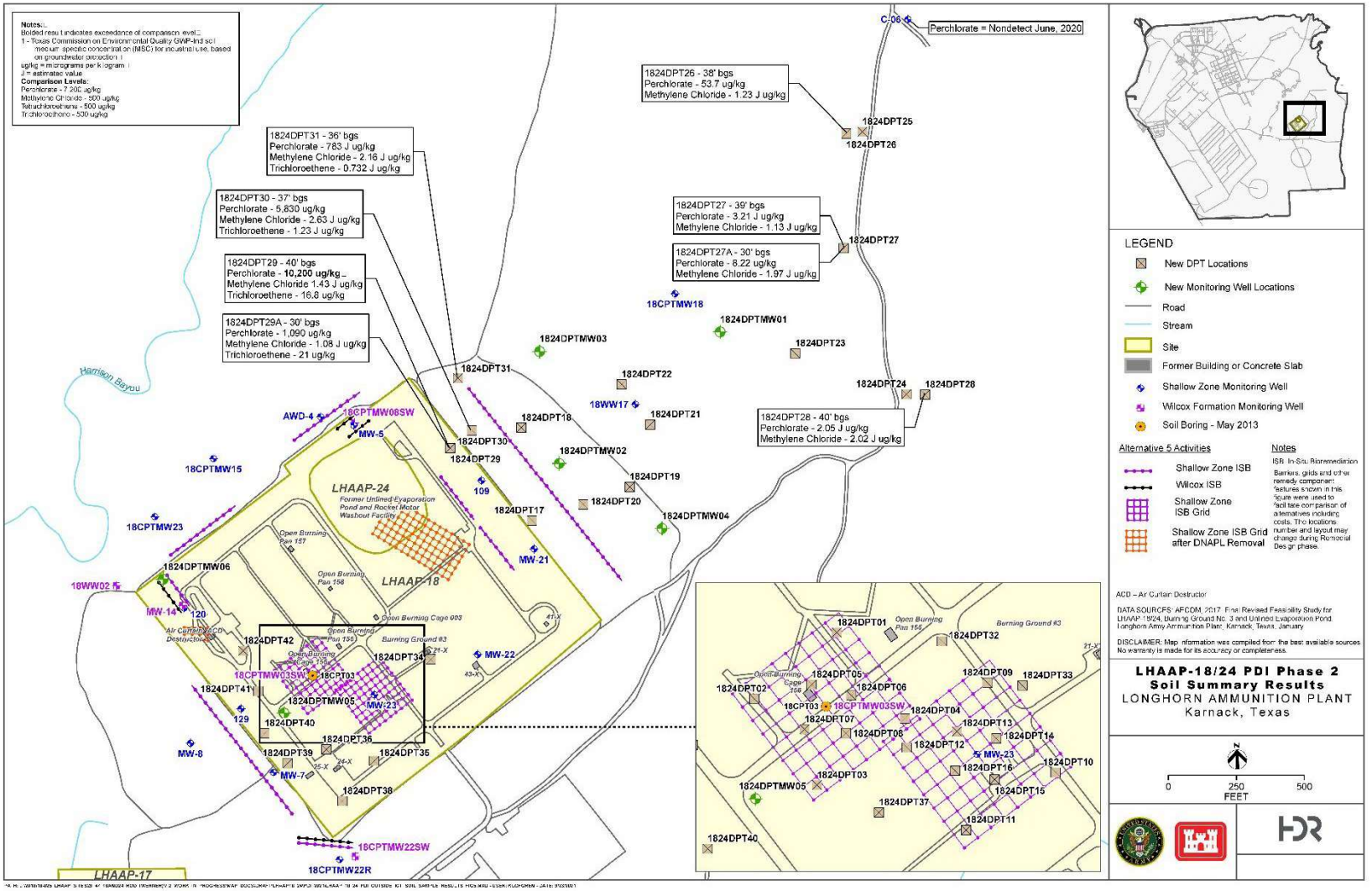
Restoration Advisory Board Meeting

LHAAP-18/24 Phase 2 PDI Field Work – Outside the NE ICT Boundary



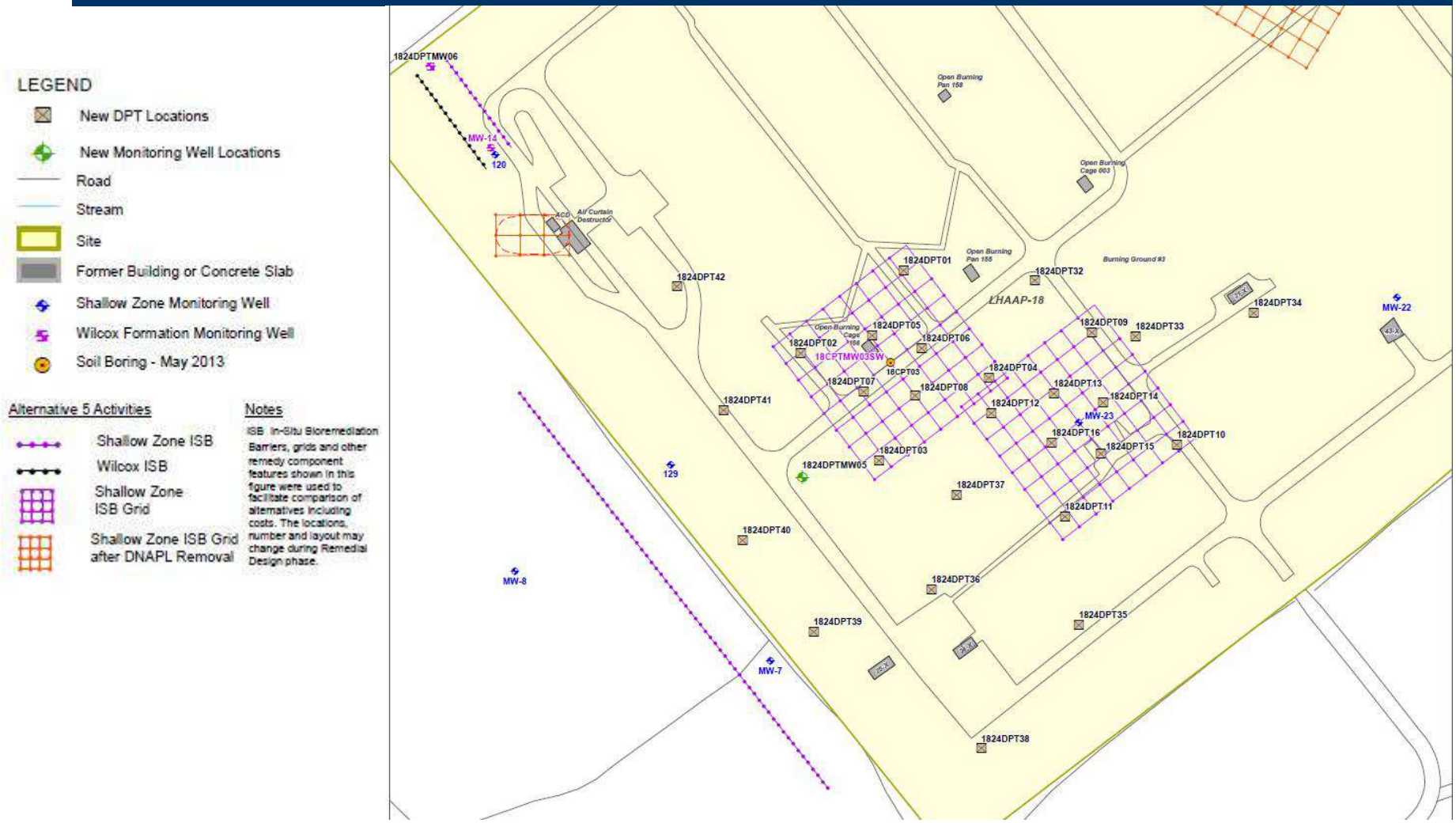
Restoration Advisory Board Meeting

LHAAP-18/24 Phase 2 PDI Field Work – Outside the NE ICT Boundary



Restoration Advisory Board Meeting

DPT and Permanent Well Locations - ISB Grid Area



Restoration Advisory Board Meeting

LHAAP-18/24 Phase 2 PDI Field Work

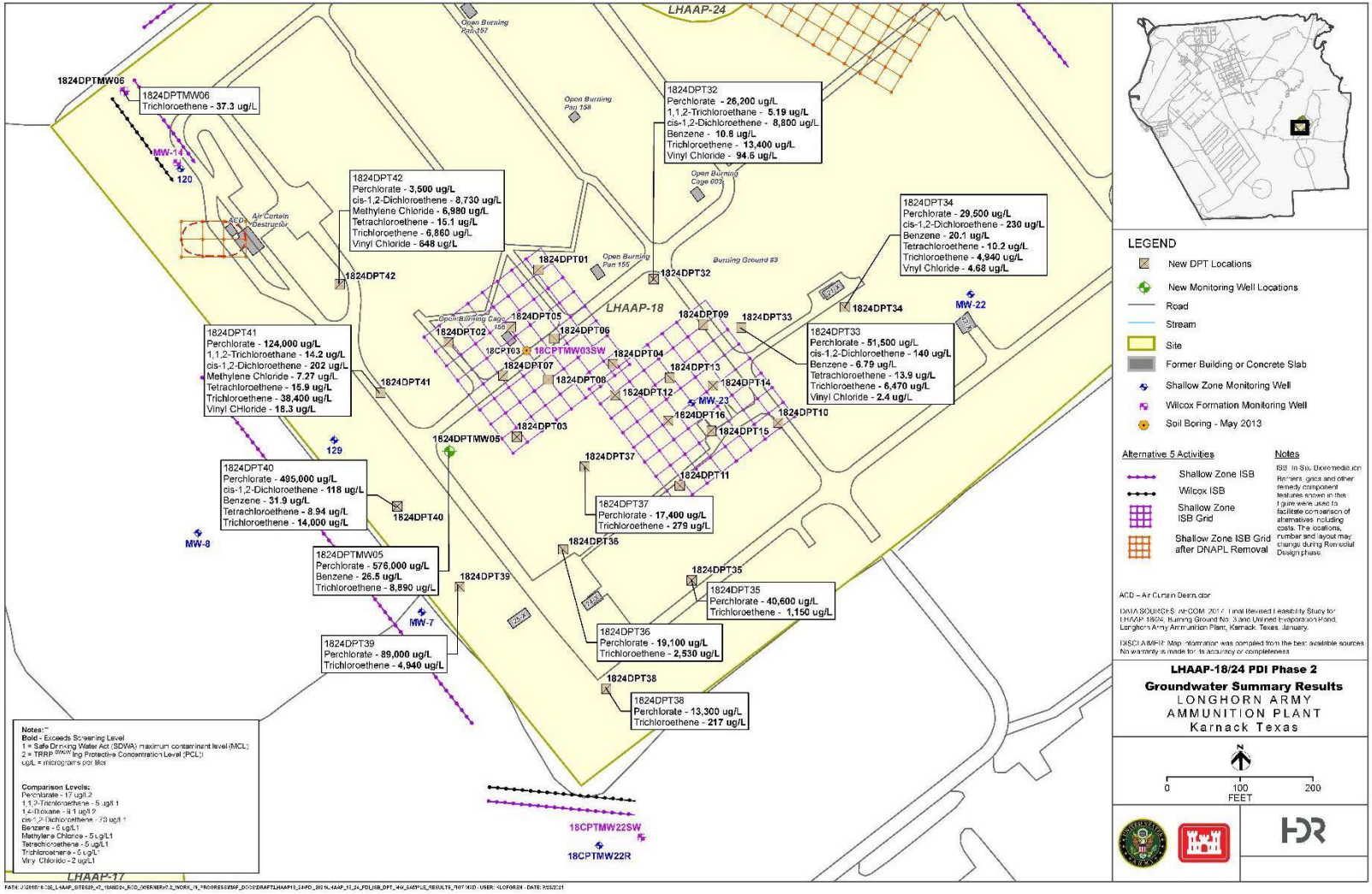
- PDI Field Work Shallow Zone in-situ bioremediation (ISB) Grids, June 2021

Preliminary Findings - Groundwater

- ✓ Perchlorate was detected in 11 out of 11 temporary wells located at concentrations that exceeded the TRRP PCL for $^{GW}GW_{Ing}$.
- ✓ Seven sample concentrations exceeded 20,000 µg/L.
- ✓ Seven VOCs had concentrations that exceeded MCLs at multiple temporary wells.
- ✓ VOCs include 1,1,2-trichloroethane; benzene; cis-1,2-DCE; MC; PCE; TCE; and VC.

Restoration Advisory Board Meeting

LHAAP-18/24 Phase 2 PDI Field Work - Shallow Zone ISB Grids



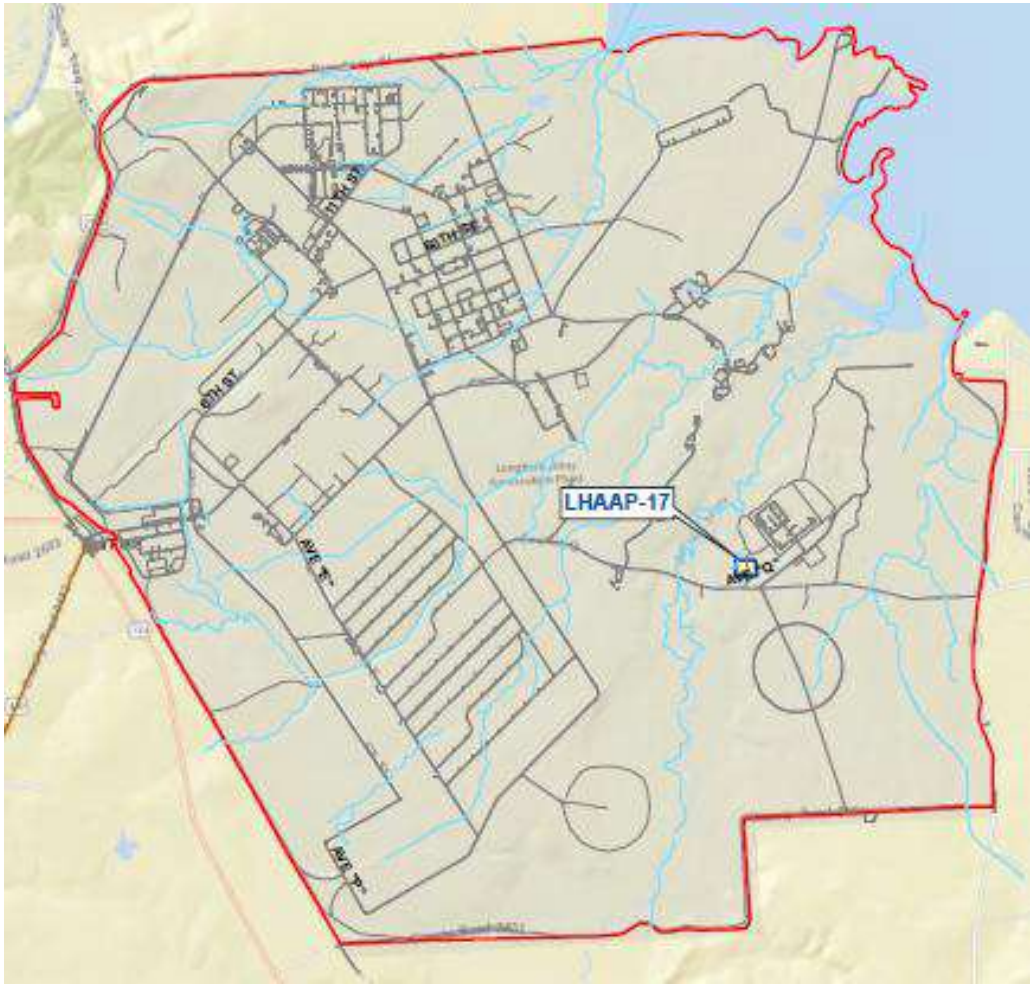
Restoration Advisory Board Meeting

Status of LHAAP-29 PDI Investigation

- ✓ Sample subset sent to a third-party laboratory for explosives analyses in soils revealed capability of achieving detection limits below the soil screening levels for explosives.
- ✓ Second set of soil samples have been submitted for re-analyses for explosives; results due end of October 2021.
- ✓ Second set sample results will be reviewed and used to develop path forward.

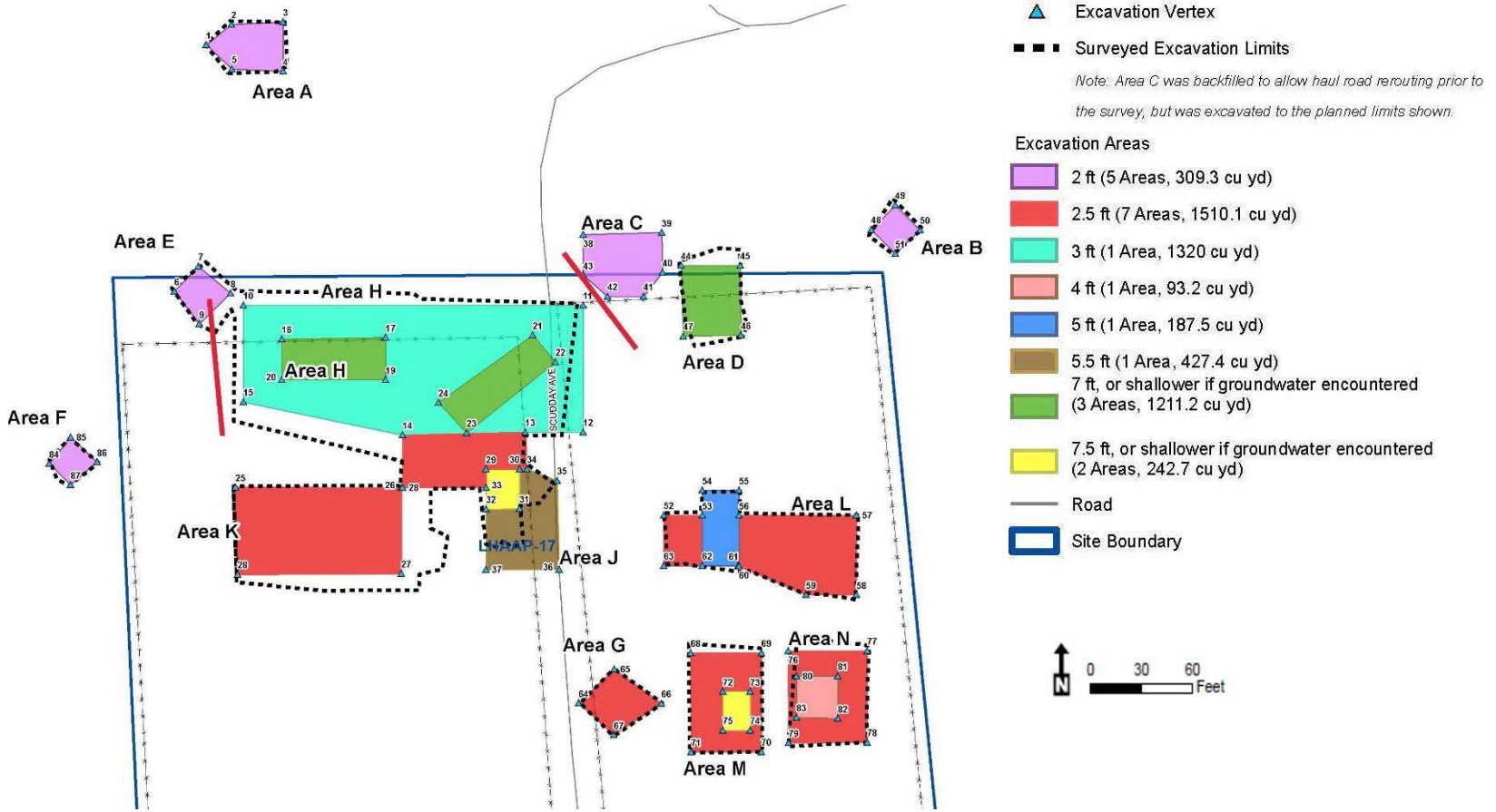
Restoration Advisory Board Meeting

MMG-TLI JV



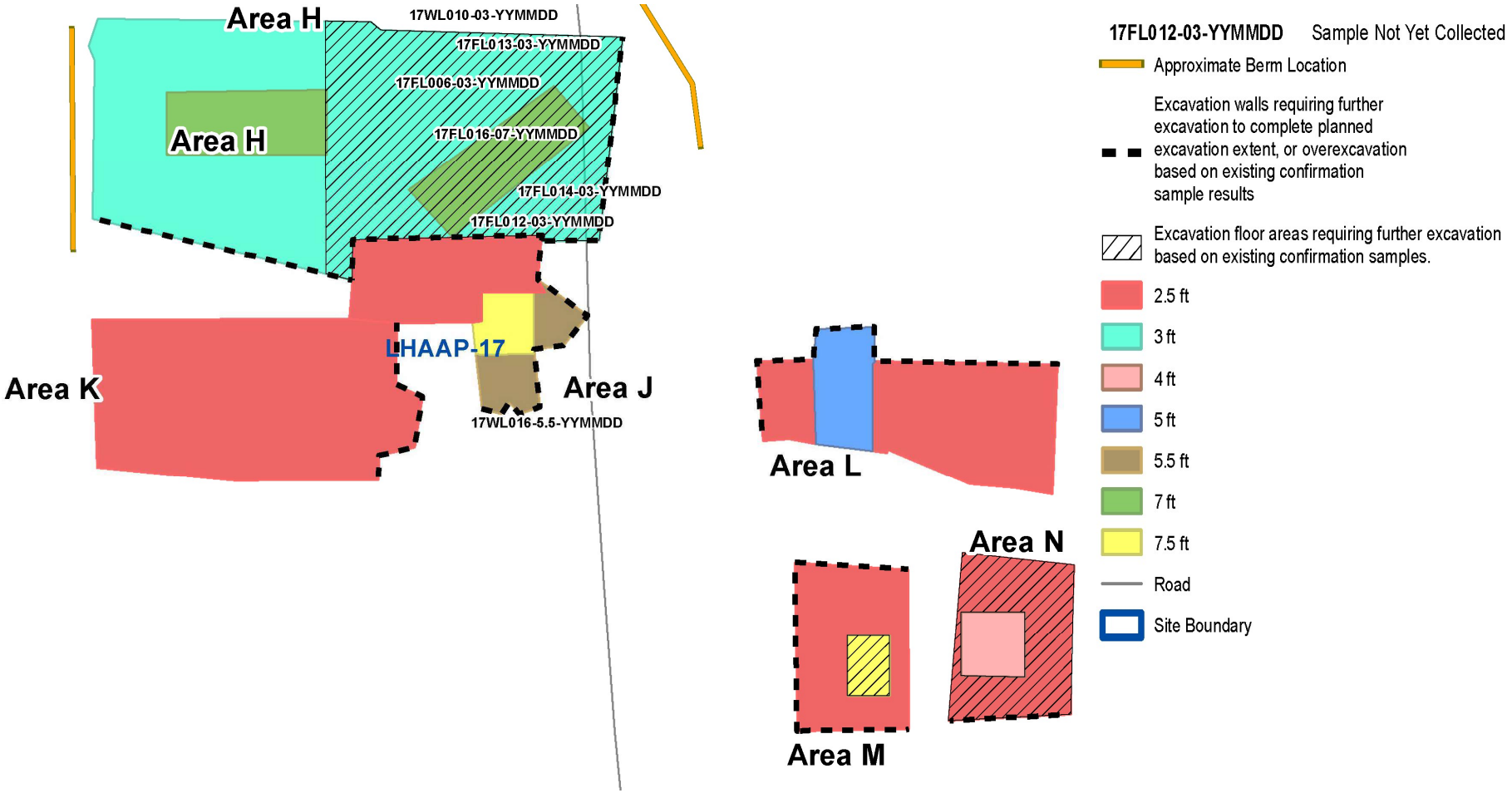
Restoration Advisory Board Meeting

LHAAP-17 Remedial Action-planned/completed to date



Restoration Advisory Board Meeting

LHAAP-17 Remedial Action-to be completed



Restoration Advisory Board Meeting

LHAAP-17 Time Critical Removal Action

- A work stoppage occurred on September 30, 2019, due to the presence of munitions hazards not previously known to be present.
- Munitions and Explosives of Concern (MEC) presents an imminent and substantial threat and a Time Critical Removal Action determined appropriate
- Site preparations have been completed including boundary survey, vegetation removal, and erosion control repair
- Backfill sources have been sampled and approved for use
- Draining of impounded waters has begun

Restoration Advisory Board Meeting

LHAAP-17 Remedial Action

- Work will recommence in accordance with approved plans.
- Major work elements are as follows:
  - Continue draining of impounded water
  - Backfill excavated areas determined to be “clean”
  - Complete site set-up, including placement of a Remotely Operated Screening/Sifting Plant
  - Establish Exclusion Zones (i.e., explosives safety arcs) as needed (using barricades)
  - Complete the excavation of soils while employing robotic earth moving machinery followed by screening/sifting and segregation of soil from debris

Restoration Advisory Board Meeting

LHAAP-17 Remedial Action

- Major work elements continued:
  - Move soil in existing soils stockpiles using robotic earth moving machinery to the remotely operated Screening/Sifting Plant and complete screening/sifting of these soils. This operation will segregate soils from debris.
  - Stage screened/sifted soil on-site in a “cleared” area for off-site disposal
  - Clear the soil surface in all accessible areas of any potential munitions and any metal or debris that may interfere with digital geophysical mapping of the subsurface

Restoration Advisory Board Meeting

LHAAP-17 Remedial Action

- Major work elements continued:
  - Complete digital geophysical mapping to identify subsurface anomalies that may represent munitions (i.e., Targets of Interest or TOI) including in areas from which stockpiles have been removed
  - Dig/remove all identified subsurface TOI
  - Install groundwater extraction system components when it is safe to do so

Restoration Advisory Board Meeting

LHAAP-17 Remedial Action

- Major work elements continued:
  - Move debris using robotic equipment to a "Material Potentially Presenting an Explosive Hazard (MPPEH)" Processing Area where debris will be segregated into:
    - MEC
    - Material Documented as Safe (MDAS)
    - Other Debris
  - Temporarily store any recovered munitions (termed MEC) for later disposal by detonation on-site

Restoration Advisory Board Meeting

LHAAP-17 Remedial Action

- **Major work elements continued:**
  - **Inspect all munitions related debris to verify no explosive hazard remains and document as safe (termed as MDAS) and temporarily store for later disposal off-site by a qualified vendor who will provide a certificate of destruction**
  - **Temporarily store all non-munitions related debris for off-site disposal**
  - **Dispose of accumulated MEC by on-site consolidated shot**

Restoration Advisory Board Meeting

LHAAP-17 Remedial Action

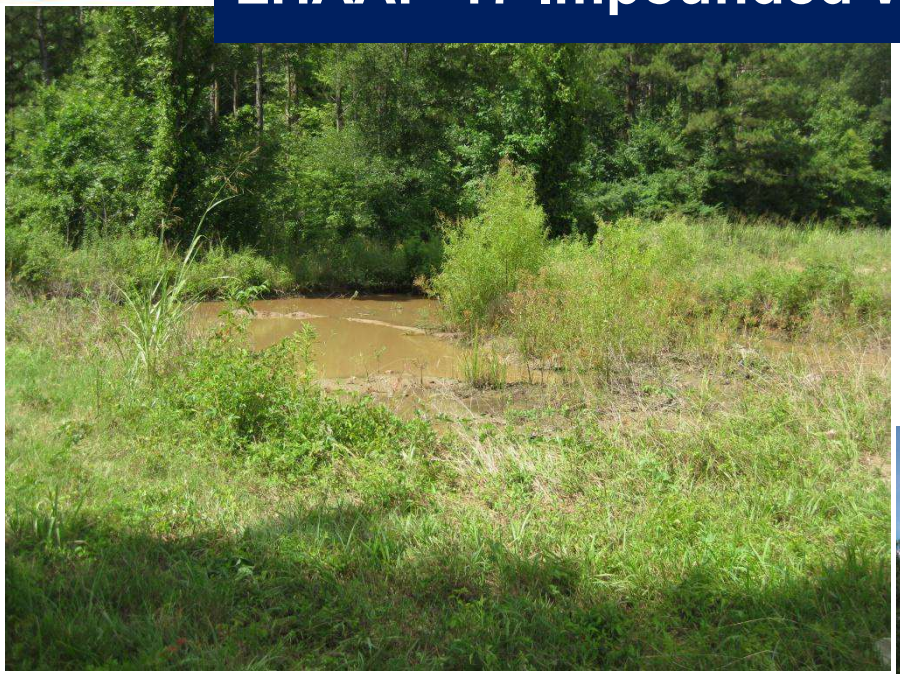
- Major work elements continued:
  - Complete sampling at locations where MEC is recovered and where it is detonated
  - Complete sampling within excavations as needed to verify remediation goals are achieved
  - Complete site restoration throughout the field work

Restoration Advisory Board Meeting

LHAAP-17 Site Layout

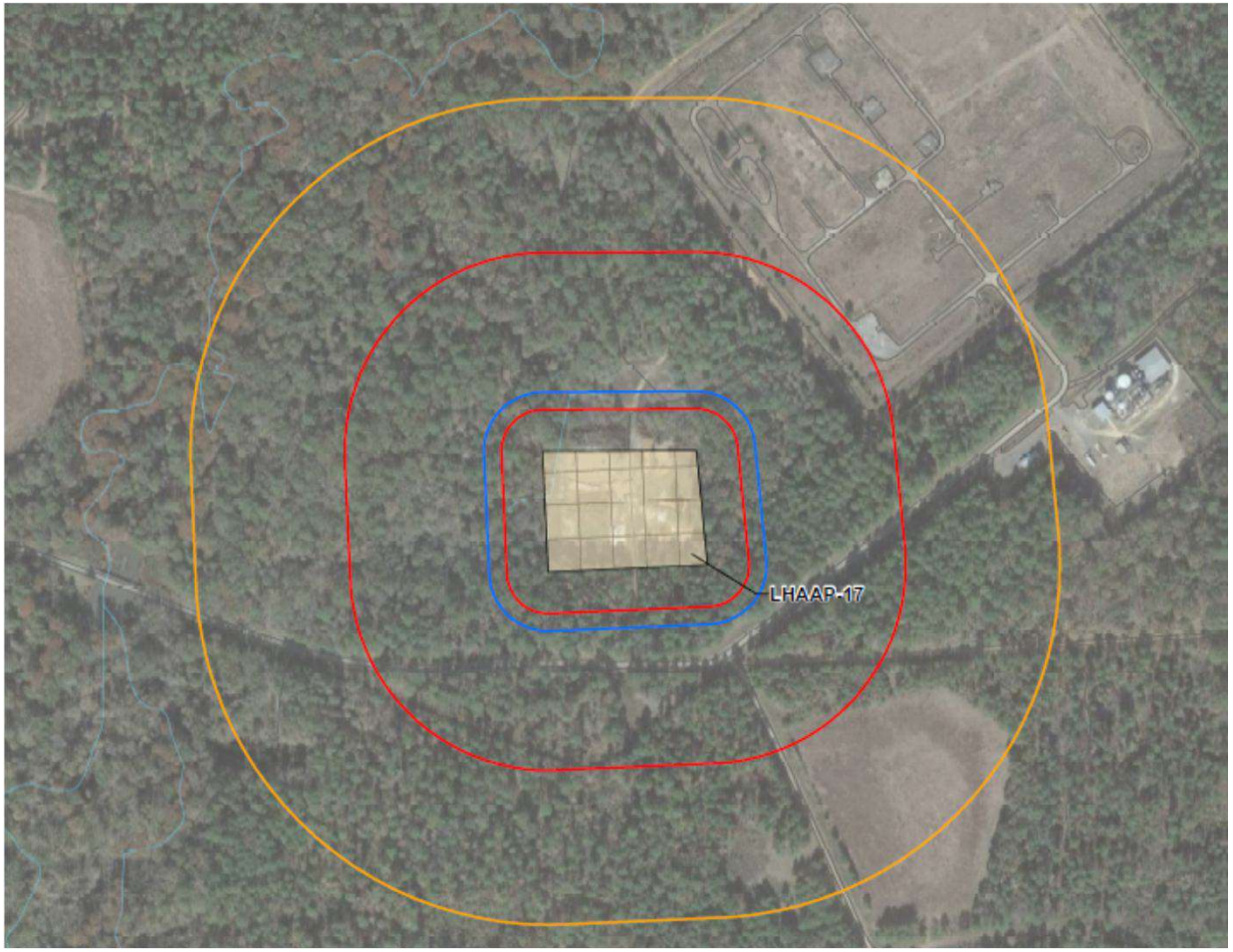
Restoration Advisory Board Meeting

LHAAP-17 Impounded Water in Open Excavations



Restoration Advisory Board Meeting

LHAAP-17 Explosives Safety Exclusion Zones



Restoration Advisory Board Meeting

LHAAP-17 Screening/Sifting

Restoration Advisory Board Meeting

Next RAB Meeting Schedule & Closing Remarks

- Schedule January 2022 RAB Meeting
- Other Issues/Remarks
- Thank you for coming

Groundwater Treatment Plant - Processed Groundwater Volumes

The amount of groundwater treated is determined by measuring the number of gallons of processed water discharged.

Processed Water Discharged Data (in gallons)

Oct-07	Nov-07	Dec-07	Jan-08	Feb-08	Mar-08	Apr-08	May-08	Jun-08	Jul-08	Aug-08	Sep-08
1,041,491	848,356	804,822	792,148	665,883	818,872	791,306	568,812	776,904	748,377	690,052	617,199

Oct-08	Nov-08	Dec-08	Jan-09	Feb-09	Mar-09	Apr-09	May-09	Jun-09	Jul-09	Aug-09	Sep-09
655,059	619,274	726,118	552,299	598,144	433,800	488,807	526,958	387,644	0	414,853	735,716

Oct-09	Nov-09	Dec-09	Jan-10	Feb-10	Mar-10	Apr-10	May-10	Jun-10	Jul-10	Aug-10	Sep-10
808,322	636,306	727,492	391,898	695,343	802,656	894,731	962,121	1,257,977	1,314,924	1,041,495	1,136,547

Oct-10	Nov-10	Dec-10	Jan-11	Feb-11	Mar-11	Apr-11	May-11	Jun-11	Jul-11	Aug-11	Sep-11
956,567	705,805	849,712	811,679	668,281	1,090,348	817,325	900,338	916,552	784,369	652,524	733,456

Oct-11	Nov-11	Dec-11	Jan-12	Feb-12	Mar-12	Apr-12	May-12	Jun-12	Jul-12	Aug-12	Sep-12
748,102	658,250	684,903	865,453	725,000*	730,000*	980,000*	630,000*	0	0	0	349,012

Oct-12	Nov-12	Dec-12	Jan-13	Feb-13	Mar-13	Apr-13	May-13	Jun-13	Jul-13	Aug-13	Sep-13
617,037	607,610	560,436	869,710	751,213	641,708	699,776	746,885	392,719	962,890	843,913	716,057

Oct-13	Nov-13	Dec-13	Jan-14	Feb-14	Mar-14	Apr-14	May-14	Jun-14	Jul-14	Aug-14	Sep-14
813,974	727,442	706,416	552,657	738,691	844,095	811,346	972,913	611,505	626,253	573,601	575,376

Oct-14	Nov-14	Dec-14	Jan-15	Feb-15	Mar-15	Apr-15	May-15	Jun-15	Jul-15	Aug-15	Sep-15
440,877	572,479	634,890	614,073	516,592	1,111,859	1,108,336	822,637	1,020,313	1,002,887	951,758	306,467

Oct-15	Nov-15	Dec-15	Jan-16	Feb-16	Mar-16	Apr-16	May-16	Jun-16	Jul-16	Aug-16	Sep-16
128,586	209,088	120,234	454,444	1,028,210	1,201,904	1,224,064	1,094,528	792,311	844,916	1,032,732	805,728

Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17	Jul-17	Aug-17	Sep-17
890,892	617,570	353,327	544,543	745,790	550,555	454,860	896,514	890,391	528,538	195,198	961,324

Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18	Jul - 18	Aug-18	Sep-18
517,945	368,318	453,155	325,566	1,607,996	1,319,474	630,888	403,369	329,448	140,247	150,228	901,856

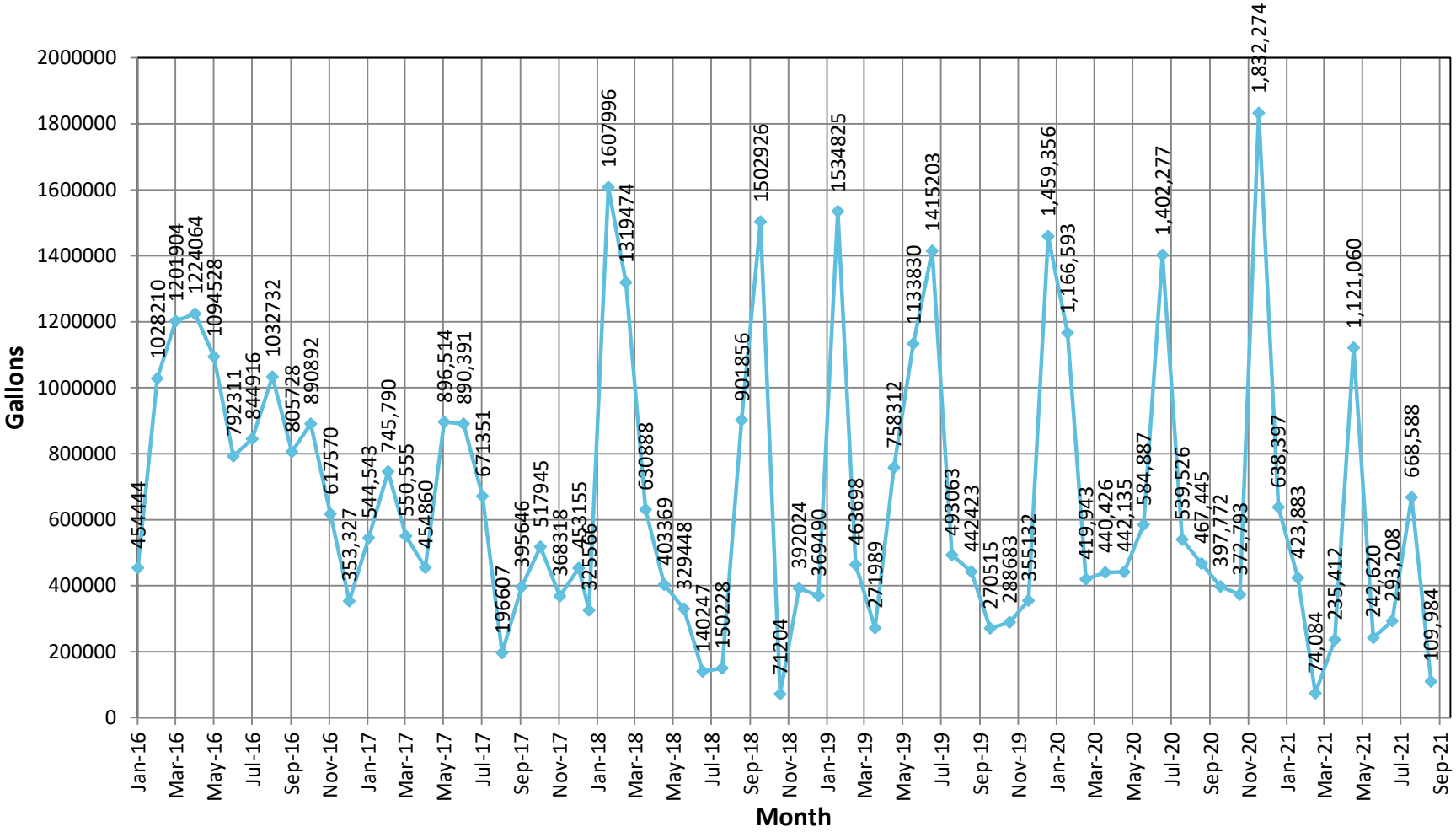
Oct-18	Nov-18	Dec-18	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul - 19	Aug-19	Sep-19
1,502,926	71,204	392,024	369,490	1,534,825	463,698	271,989	758,312	1,133,830	1,415,203	493,063	442,423

Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20
270,515	288,683	355,132	1,459,356	1,166,593	419,943	440,426	442,135	584,887	1,402,277	539,526	467,445

Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21
397,772	372,793	1,832,274	638,397	423,883	74,084	235,412	1,121,060	242,620	293,208	668,588	109,984

*Indicates Estimate

Treated Groundwater Discharged Monthly from December 2014 through September 2021



Water Discharge Location and Volume (Gallons)

Month	Total Combined to Harrison Bayou	LHAAP-18/24 Sprinklers	GWTP To INF Pond	INF Pond to Harrison Bayou	Contract Hauled Off-Site
Dec-16	0	236,688	0	0	0
Jan-17	0	0	0	0	0
Feb-17	0	0	0	0	14,355
Mar-17	127,242	0	0	0	14,400
Apr-17	113,038	0	236,821	0	0
May-17	0	0	534,155	0	0
Jun-17	958,404	0	294,550	490,574	0
Jul-17	0	0	528,538	0	0
Aug-17	0	0	195,197	0	0
Sep-17	651,434	0	309,980	651,434	0
Oct-17	0	0	517,945	0	0
Nov-17	0	0	368,318	0	0
Dec-17	560,350	0	453,155	560,350	0
Jan-18	325,566	0	253,177	325,566	0
Feb-18	1,607,996	0	62,017	1,430,634	0
Mar-18	1,319,474	0	0	870,816	0
Apr-18	630,888	0	0	630,888	0
May-18	403,369	0	0	403,369	0
Jun-18	193,669	0	135,779	0	0
Jul -18	0	0	140,247	0	0
Aug -18	49,409	0	100,819	0	0
Sep-18	585,397	0	316,459	524,484	0
Oct-18	1,409,106	0	93,820	1,016,285	0
Nov-18	71,204	0	0	0	0
Dec-18	392,024	0	0	0	0
Jan-19	369,490	0	0	369,490	0
Feb-19	1,534,825	0	0	1,326,485	0
Mar-19	463,698	0	0	83,250	0
Apr-19	271,989	0	0	0	0
May-19	758,312	0	0	253,817	0
Jun-19	1,133,830	0	0	847,918	0
Jul-19	1,415,203	0	0	903,001	0
Aug-19	374,629	0	118,434	0	0

Month	Total Combined to Harrison Bayou	LHAAP-18/24 Sprinklers	GWTP To INF Pond	INF Pond to Harrison Bayou	Contract Hauled Off-Site
Sep-19	0	0	442,423	0	0
Oct-19	0	0	270,515	0	0
Nov-19	115,503	0	173,180	0	0
Dec-19	318,248	0	36,884	0	0
Jan-20	1,459,396	0	0	1,115,183	0
Feb-20	1,166,593	0	0	741,954	0
Mar-20	419,943	0	0	0	0
Apr-20	440,426	0	0	0	0
May-20	442,135	0	0	0	0
June-20	584,887	0	0	0	0
July-20	1,402,277	0	0	984,393	0
Aug-20	216,197	0	323,359	0	0
Sep-20	0	0	467,445	0	0
Oct-20	0	0	397,772	0	0
Nov-20	0	0	372,793	0	0
Dec-20	1,832,274	0	60,199	1,571,432	0
Jan-21	638,397	0	0	383,318	0
Feb-21	423,883	0	0	259,875	0
Mar-21	74,084	0	0	74,084	0
Apr-21	235,412	0	0	0	0
May-21	1,121,060	0	0	900,000	0
Jun-21	242,620	0	0	0	0
Jul-21	293,208	0	0	243,675	0
Aug-21	668,588	0	0	561,527	0
Sep-21	0	0	109,984	0	0

Harrison Bayou and Goose Prairie Creek – Perchlorate Data

Surface water samples are collected quarterly from each location in Harrison Bayou and Goose Prairie Creek, unless the sampling location is dry.

Surface Water Sample Data (in micrograms per liter)

Quarter	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st
Creek Sample ID	**Jul 1999**	**Sep 1999**	**Feb 2000**	**Apr 2000**	**Aug 2000**	**Dec 2000**	**Feb 2001**	**Apr 2001**	**July 2001**	**Oct 2001**	**Jan 2002**
GPW-1	<1.0 U	-	4	<4.0 U	<4.0 U	<4.0 U	-	2.65	<4.0 U	<4.0 U	<4.0 U
GPW-3	<1.0 U	<4.0 U	17	8	<4.0 U	<4.0 U	-	2.28	<4.0 U	<4.0 U	<4.0 U
HBW-1	-	<8.0 U	310	23	-	-	<4.0 U	-	<4.0 U	<4.0 U	<4.0 U
HBW-7	-	<8.0 U	370	110	-	-	<4.0 U	-	<4.0 U	<4.0 U	<4.0 U
HBW-10	-	<8.0 U	905	650	<4.0 U	-	<4.0 U	-	<4.0 U	-	-

Quarter	2nd	3rd	4th	1st	2nd	3rd	3rd	4th	2nd	3rd	4th
Creek Sample ID	**June 2002**	**Sept 2002**	**Dec 2002**	**Feb 2003**	**June 2003**	**Aug 2003**	**July 2004**	**Dec 2006**	**May 2007**	**Aug 2007**	**Dec 2007**
GPW-1	<4.0 U	<4.0 U	18.3	18.6	59.9	-	2.25	-	<1.0 U	<1.0 U	10.7
GPW-3	<4.0 U	<4.0 U	5.49	12.6	14.7	-	2.2	-	<1.0 U	<1.0 U	7.48
HBW-1	<4.0 U	<4.0 U	<4.0 U	-	<4.0 U	99.3	<0.2 U	<1.0 U	<1.0 U	122	<1.0 U
HBW-7	<4.0 U	<4.0 U	<4.0 U	-	<4.0 U	<4.0 U	<0.2 U	<1.0 U	<1.0 U	1.02	<1.0 U
HBW-10	<4.0 U	<4.0 U	<4.0 U	-	<4.0 U	-	<0.2 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U

Quarter	1st	2nd	3rd	4th	2nd	3rd	3rd	3rd	4th	1st	2nd
Creek Sample ID	**Mar 2008**	**Jun 2008**	**Sep 2008**	**Dec 2008**	**May 2009**	**Jul 2009**	**Aug 2009**	**Sep 2009**	**Dec 2009**	**Mar 2010**	**Jun 2010**
GPW-1	27	<0.5 U	<0.5 U	<0.22 U	16	<4 U	NS	<1.2 U	3.7	1.3 J	<0.6 U
GPW-3	21.9	9.42	1.1	<0.22 U	8.9	<4 U	NS	<0.6 U	2.8	1.8 J	<0.6 U
HBW-1	<0.5 U	<0.5 U	<0.5 U	<0.22 U	<0.55 U	<4 U	NS	<1.5 U	<0.275 U	1.5 U	<0.6 U
HBW-7	<0.5 U	<0.5 U	<0.5 U	<0.22 U	<0.55 U	<4 U	24	<1.2 U	<0.275 U	1.5 U	<0.6 U
HBW-10	<0.5 U	<0.5 U	<0.5 U	<0.22 U	<0.55 U	<4 U	NS	<1.5 U	<0.275 U	1.2 U	<0.6 U

Quarter	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st
Creek Sample ID	**Sep 2010**	**Dec 2010**	**Mar 2011**	**Jun 2011**	**Sep 2011**	**Dec 2011**	**Mar 2012**	**Jun 2012**	**Not Applicable**	**Jan & Feb 2013**	**Mar 2013**
GPW-1	Dry	<0.1 U	8.7	Dry	Dry	1.76	0.163 J	Dry	NS	1.65	0.735
GPW-3	Dry	0.199 J	0.673	Dry	Dry	1.31	0.261	Dry	NS	1.74	0.754
HBW-1	Dry	<0.1 U	<0.2 U	Dry	Dry	<0.1 U	<0.1 U	Dry	NS	<0.2 U	<0.2 U
HBW-7	Dry	<0.1 U	<0.2 U	Dry	Dry	0.171 J	<0.1 U	Dry	NS	<0.2 U	<0.2 U
HBW-10	Dry	<0.1 U	<0.2 U	Dry	Dry	<0.1 U	<0.1 U	Dry	NS	<0.2 U	<0.2 U

Quarter	2nd	3rd	4th	1st	2nd	3nd	4th	1st	2nd	3rd	4th
Creek Sample ID	**Jun 2013**	**Sept 2013**	**Dec 2013**	**Feb 2014**	**May 2014**	**Aug 2014**	**Nov 2014**	**Feb 2015**	**May 2015**	**Aug 2015**	**Nov 2015**
GPW-1	Dry	<0.2 U	Dry	0.766	Dry	Dry	0.244 J	0.311 J	0.156 J	Dry	0.142 J
GPW-3	Dry	<0.2 U	Dry	1.15	Dry	Dry	0.276 J	0.344 J	Dry	Dry	0.311 J
HBW-1	<0.2 U	<0.2 U	Dry	<0.2 U	Dry	Dry	<0.2 U	<0.2 U	Dry	Dry	<0.2 U
HBW-7	<0.2 U	<0.2 U	Dry	0.201 J	Dry	Dry	<0.2 U	0.124 J	Dry	Dry	<0.2 U
HBW-10	<0.2 U	<0.2 U	Dry	<0.2 U	Dry	Dry	<0.2 U	<0.2 U	Dry	Dry	<0.2 U

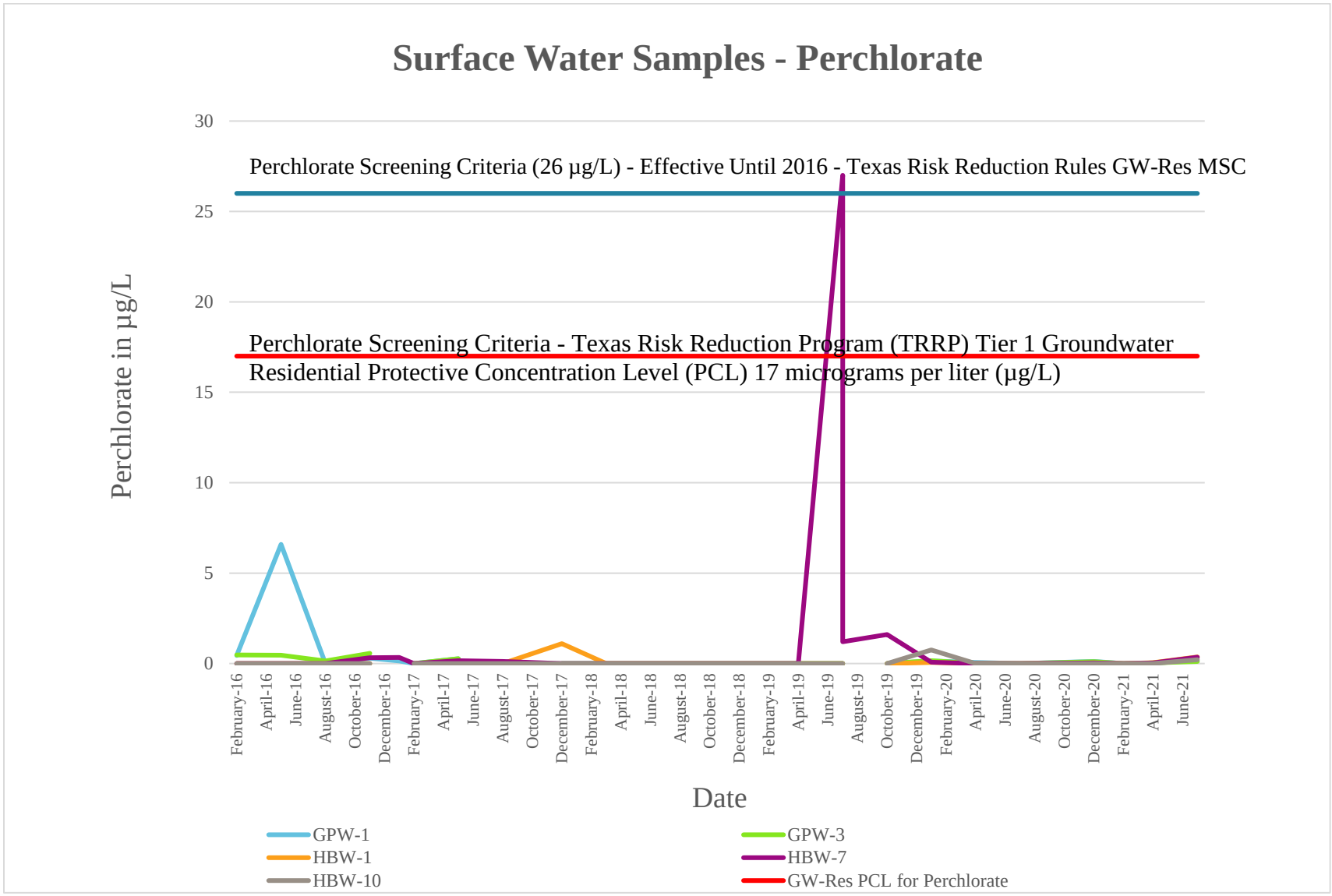
Quarter	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd
Creek Sample ID	**Feb 2016**	**May 2016**	**Aug 2016**	**Nov 2016**	**Feb 2017**	**May 2017**	**Aug 2017**	**Dec 2017**	**Mar 2018**	**Jun 2018**	**Aug 2018**
GPW-1	0.447	6.59	<0.2 U	0.301 J	<1 U	0.263	Dry	<2.0 U	<2.0 U	Dry	<2.0 U
GPW-3	0.474	0.457	0.141	0.563	<1 U	0.274	Dry	<2.0 U	<2.0 U	Dry	<2.0 U
HBW-1	<0.2 U	<0.2 U	<0.2 U	<0.2 U	<1 U	<0.2 U	<0.2 U	1.1 J	<2.0 U	Dry	<2.0 U
HBW-7	<0.2 U	<0.2 U	<0.2 U	0.318 J	<1 U	0.155	<0.2 U	<2.0 U	<2.0 U	Dry	<2.0 U
HBW-10	<0.2 U	<0.2 U	<0.2 U	<0.2 U	<1 U	<0.2 U	0.111 J	<2.0 U	<2.0 U	Dry	<2.0 U

NS – not sampled U – non-detect J – Estimated Dry – no surface water

Quarter	4th	1st	2nd	3rd	4th	1st	2nd	3rd
Creek Sample ID	Oct 2018	Jan 2019	Apr 2019	Jul 2019	Oct 2019	Jan 2020	Apr 2020	Jul 2020
GPW-1	<2.0 U	<2.0 U	<2.0 U	<2.0 U	<2.0 U	0.163	0.0589 J	<0.05 U
GPW-3	<2.0 U	<2.0 U	<2.0 U	<2.0 U	<2.0 U	0.156	0.0662 J	0.0326 J
HBW-1	<2.0 U	<2.0 U	<2.0 U	<2.0 U	<2.0 U	0.0600 J	<0.05 U	<0.05 U
HBW-7	<2.0 U	<2.0 U	<2.0 U	27 (initial)/ 1.2 J (resample)	1.6 J	0.0761 J	<0.05 U	0.0318 J
HBW-10	<2.0 U	<2.0 U	<2.0 U	<2.0 U	<2.0 U	0.0782 J	<0.05 U	<0.05 U

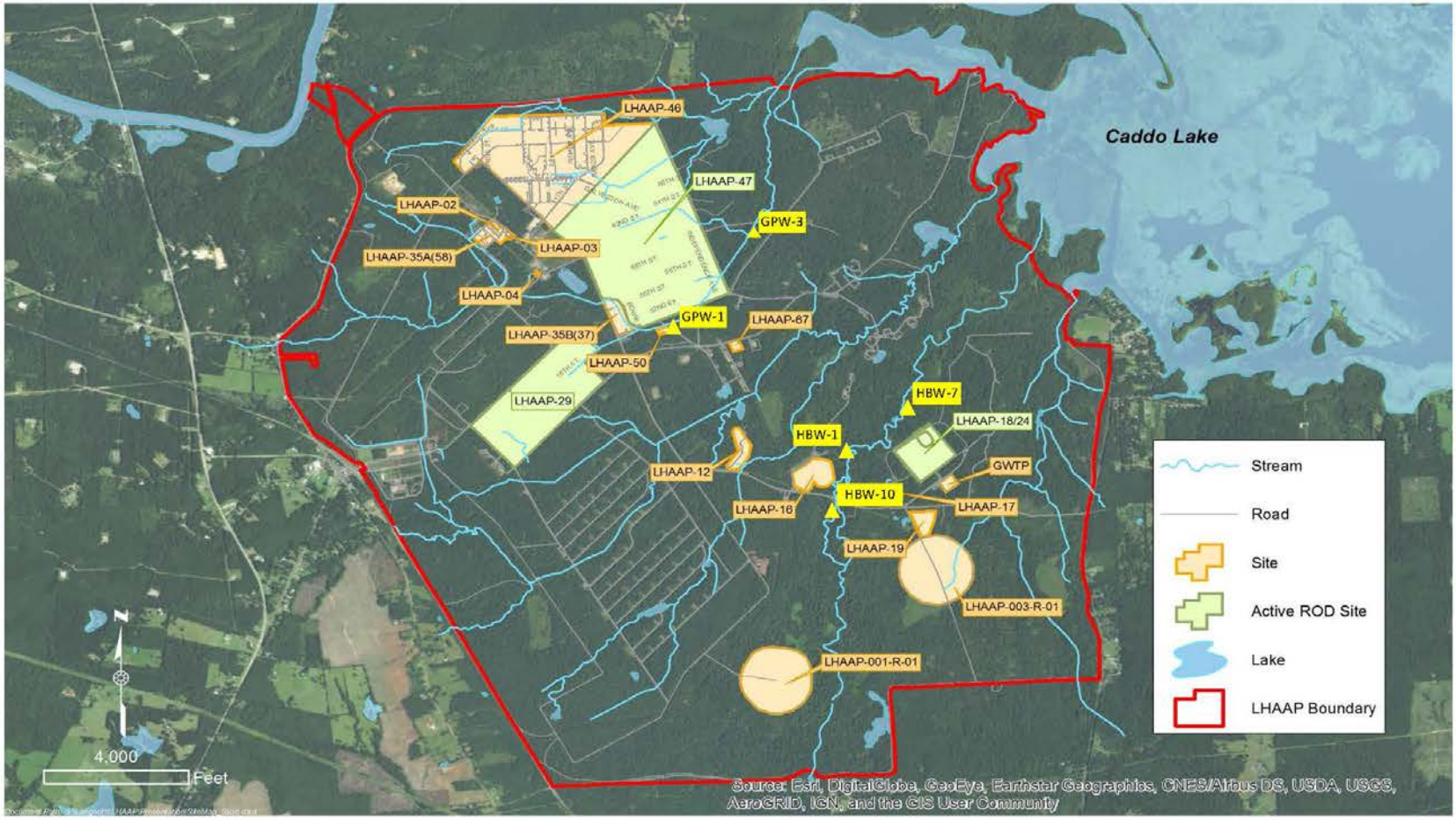
Quarter	4th	1st	2nd	3rd
Creek Sample ID	Dec 2020	Feb 2021	Apr 2021	Jul 2021
GPW-1	0.110	<0.05 U	0.0268 J	0.154
GPW-3	0.108	<0.05 U	0.0321 J	0.122
HBW-1	0.0374 J	<0.05 U	0.0410 J	0.369
HBW-7	0.0265 J	<0.05 U	0.0373 J	0.348
HBW-10	<0.05 U	<0.05 U	<0.05 U	0.207

NS – not sampled U – non-detect J – Estimated Dry – no surface water



Note: Surface water at HBW-7 had a detection of 27 µg/L from a sample collected on 11 July 2019. Surface water at HBW-7 was resampled 19 days later (30 July 2019) with a detection of 1.2 J µg/L.

Longhorn Army Ammuntion Plant Creek Sampling Locations



DEPARTMENT OF THE ARMY
LONGHORN ARMY AMMUNITION PLANT
POST OFFICE BOX 220
RATCLIFF, AR 72951

January 20, 2022

DAIM-ODB-LO

Ms. April Palmie
Texas Commission on Environmental Quality Superfund Section, MC-136
12100 Park 35 Circle, Bldg D
Austin, TX 78753

Re: Surface Water Data Transmittal – 2021, Longhorn Army Ammunition Plant, Karnack, TX

Dear Ms. Palmie,

The surface water data, collected as a requirement of the 1999 Perchlorate Dispute Resolution, will be documented in the Administrative Record via data memoranda provided by the Army. The quarterly surface water sampling results along with historical data, is presented in the attached memorandum for your file and does not require your review.

The document was prepared by Bhate Environmental Associates, Inc., (Bhate) on behalf of the Army as part of Bhate's Performance Based Remediation contract for the facility. I ask that Kim Nemmers, Bhate's Project Manager, be copied on any communications related to the project.

The point of contact for this action is the undersigned. I may be contacted at 479-635-0110, or by email at rose.m.zeiler.ctr@army.mil.

Sincerely,

Rose M. Zeiler, Ph.D.
Longhorn AAP Site Manager

Copies furnished:
B. Follin, USEPA Region 6, Dallas, TX
P. Bruckwicki, Caddo Lake NWR, TX
A. Williams, USACE, ARMY Environmental Section Regional Planning and Environmental Center Fort Worth District (located in Tulsa)
A. Nieves, USAEC, San Antonio, TX
K. Nemmers, Bhate, Lakewood, CO (for project files)

DEPARTMENT OF THE ARMY
LONGHORN ARMY AMMUNITION PLANT
POST OFFICE BOX 220
RATCLIFF, AR 72951

January 20, 2022

DAIM-ODB-LO

Mr. Brian Follin
US Environmental Protection Agency
Federal Facilities Section R6
1201 Elm St, Ste 500
Dallas, TX 75270

Re: Surface Water Data Transmittal – 2021, Longhorn Army Ammunition Plant, Karnack, TX

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Sincerely,

Rose M. Zeiler, Ph.D.
Longhorn AAP Site Manager

Copies furnished:
A. Palmie, TCEQ, Austin, TX
P. Bruckwicki, Caddo Lake NWR, TX
A. Williams, USACE, ARMY Environmental Section Regional Planning and Environmental Center Fort Worth District (located in Tulsa)
A. Nieves, USAEC, San Antonio, TX
K. Nemmers, Bhate, Lakewood, CO (for project files)

bhate

LETTER OF TRANSMITTAL

DATE: January 20, 2022

PROJECT NAME: Remediation of Multiple Sites, Longhorn Army Ammunition Plant, Karnack, Texas

TO: Rose Zeiler — BRAC Site Manager
Aaron Williams — USACE Project Engineer

FROM: Kim Nemmers — Bhate Project Manager

SUBJECT: **Surface Water Data Transmittal - 2021**
Longhorn Army Ammunition Plant, Karnack, TX
Contract: W9128F-13-D-0012
Delivery Order: W912BV17F0150

REMARKS

Surface water sampling data for perchlorate is currently collected at the following frequencies except when locations are dry:

Surface Water	Frequency
HBW-1	Harrison Bayou, quarterly
HBW-7	Harrison Bayou, quarterly
HBW-10	Harrison Bayou, quarterly
GPW-1	Goose Prairie Creek, quarterly
GPW-3	Goose Prairie Creek, quarterly

Surface water sampling data is updated and reported to the regulatory agencies and to the public as it is available through handouts reviewed and distributed in association with the quarterly Restoration Advisory Board (RAB) meetings, and included in the Administrative Record along with other RAB meeting materials. The attached handouts will be presented at the January 2022 RAB meeting. Data associated with the 2021 surface water sampling events, including the data validation report (Quality Control Summary Report) for the samples, are attached for your file.

List of Attachments:

Table 1. LHAAP Quarterly Surface Water Sampling - 2021
A Harrison Bayou and Goose Prairie Creek Perchlorate Data Handouts
B Quality Control Summary Report
C Laboratory Data Packages

LHAAP-Quarterly Surface Water Sampling - 2021

February 2021 (Quarter 1)

Location ID: / Sample Date:	Units	PCL	HBW7_020821 2/08/21	HBW10_020821 2/08/21	HBW1_020821 2/08/21	HBW1_020821-a 2/08/21	GPW1_020821 2/08/21	GPW3_020821 2/08/21
Perchlorate (6850)			Harrison Bayou				Goose Prairie Creek	
Perchlorate	µg/L	17	< 0.0500 U	< 0.0500 U	< 0.0500 U	< 0.0500 U	< 0.0500 U	< 0.0500 U

April 2021 (Quarter 2)

Location ID: / Sample Date:	Units	PCL	HBW7_042721 4/27/21	HBW10_042721 4/27/21	HBW10_042721-a 4/27/21	HBW1_042721 4/27/21	GPW1_042721 4/27/21	GPW3_042721 4/27/21
Perchlorate (6850)			Harrison Bayou				Goose Prairie Creek	
Perchlorate	µg/L	17	**0.0373 J**	< 0.0500 U	**0.0256 J**	**0.0410 J**	**0.0268 J**	**0.0321 J**

July 2021 (Quarter 3)

Location ID: / Sample Date:	Units	PCL	HBW7_070621 7/6/21	HBW10_070621 7/6/21	HBW1_070621 7/6/21	HBW1_070621_a 7/6/21	GPW1_070621 7/6/21	GPW3_070621 7/6/21
Perchlorate (6850)			Harrison Bayou				Goose Prairie Creek	
Perchlorate	µg/L	17	**0.348**	**0.207**	**0.369**	**0.295**	**0.154**	**0.122**

December 2021 (Quarter 4)

Location ID: / Sample Date:	Units	PCL	HBW7_122221 12/22/21	HBW7_122221_a 12/22/21	HBW10_122221 12/22/21	HBW1_122221 12/22/21	GPW1_122221 12/22/21	GPW3_122221 12/22/21
Perchlorate (6850)			Harrison Bayou				Goose Prairie Creek	
Perchlorate	µg/L	17	**0.0359 J**	**0.0353 J**	**0.0464 J**	< 0.0500 U	**0.0394 J**	**0.0344 J**

PCL – Texas Risk Reduction Program (TRRP) Tier 1 Groundwater Residential Protective Concentration Level

µg/L - micrograms per liter

J - estimated value between the detection limit and limit of quantitation and/or due to quality contol issues

U - nondetect; reported to the limit of detection

Attachment A

Harrison Bayou and Goose Prairie Creek Perchlorate Data Handouts

Harrison Bayou and Goose Prairie Creek Perchlorate Data Handouts

Surface water samples are collected quarterly from each location in Harrison Bayou and Goose Prairie Creek, unless the sampling location is dry.

Surface Water Sample Data (in micrograms per liter)

Quarter	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st
Creek Sample ID	Jul 1999	Sep 1999	Feb 2000	Apr 2000	Aug 2000	Dec 2000	Feb 2001	Apr 2001	July 2001	Oct 2001	Jan 2002
GPW-1	<1.0 U	-	4	<4.0 U	<4.0 U	<4.0 U	-	2.65	<4.0 U	<4.0 U	<4.0 U
GPW-3	<1.0 U	<4.0 U	17	8	<4.0 U	<4.0 U	-	2.28	<4.0 U	<4.0 U	<4.0 U
HBW-1	-	<8.0 U	310	23	-	-	<4.0 U	-	<4.0 U	<4.0 U	<4.0 U
HBW-7	-	<8.0 U	370	110	-	-	<4.0 U	-	<4.0 U	<4.0 U	<4.0 U
HBW-10	-	<8.0 U	905	650	<4.0 U	-	<4.0 U	-	<4.0 U	-	-

Quarter	2nd	3rd	4th	1st	2nd	3rd	3rd	4th	2nd	3rd	4th
Creek Sample ID	June 2002	Sept 2002	Dec 2002	Feb 2003	June 2003	Aug 2003	July 2004	Dec 2006	May 2007	Aug 2007	Dec 2007
GPW-1	<4.0 U	<4.0 U	18.3	18.6	59.9	-	2.25	-	<1.0 U	<1.0 U	10.7
GPW-3	<4.0 U	<4.0 U	5.49	12.6	14.7	-	2.2	-	<1.0 U	<1.0 U	7.48
HBW-1	<4.0 U	<4.0 U	<4.0 U	-	<4.0 U	99.3	<0.2 U	<1.0 U	<1.0 U	122	<1.0 U
HBW-7	<4.0 U	<4.0 U	<4.0 U	-	<4.0 U	<4.0 U	<0.2 U	<1.0 U	<1.0 U	1.02	<1.0 U
HBW-10	<4.0 U	<4.0 U	<4.0 U	-	<4.0 U	-	<0.2 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U

Quarter	1st	2nd	3rd	4th	2nd	3rd	3rd	3rd	4th	1st	2nd
Creek Sample ID	Mar 2008	Jun 2008	Sep 2008	Dec 2008	May 2009	Jul 2009	Aug 2009	Sep 2009	Dec 2009	Mar 2010	Jun 2010
GPW-1	27	<0.5 U	<0.5 U	<0.22 U	16	<4 U	NS	<1.2 U	3.7	1.3 J	<0.6 U
GPW-3	21.9	9.42	1.1	<0.22 U	8.9	<4 U	NS	<0.6 U	2.8	1.8 J	<0.6 U
HBW-1	<0.5 U	<0.5 U	<0.5 U	<0.22 U	<0.55 U	<4 U	NS	<1.5 U	<0.275 U	1.5 U	<0.6 U
HBW-7	<0.5 U	<0.5 U	<0.5 U	<0.22 U	<0.55 U	<4 U	24	<1.2 U	<0.275 U	1.5 U	<0.6 U
HBW-10	<0.5 U	<0.5 U	<0.5 U	<0.22 U	<0.55 U	<4 U	NS	<1.5 U	<0.275 U	1.2 U	<0.6 U

Quarter	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st
Creek Sample ID	Sep 2010	Dec 2010	Mar 2011	Jun 2011	Sep 2011	Dec 2011	Mar 2012	Jun 2012	Not Applicable	Jan & Feb 2013	Mar 2013
GPW-1	Dry	<0.1 U	8.7	Dry	Dry	1.76	0.163 J	Dry	NS	1.65	0.735
GPW-3	Dry	0.199 J	0.673	Dry	Dry	1.31	0.261	Dry	NS	1.74	0.754
HBW-1	Dry	<0.1 U	<0.2 U	Dry	Dry	<0.1 U	<0.1 U	Dry	NS	<0.2 U	<0.2 U
HBW-7	Dry	<0.1 U	<0.2 U	Dry	Dry	0.171 J	<0.1 U	Dry	NS	<0.2 U	<0.2 U
HBW-10	Dry	<0.1 U	<0.2 U	Dry	Dry	<0.1 U	<0.1 U	Dry	NS	<0.2 U	<0.2 U

Quarter	2nd	3rd	4th	1st	2nd	3nd	4th	1st	2nd	3rd	4th
Creek Sample ID	Jun 2013	Sept 2013	Dec 2013	Feb 2014	May 2014	Aug 2014	Nov 2014	Feb 2015	May 2015	Aug 2015	Nov 2015
GPW-1	Dry	<0.2 U	Dry	0.766	Dry	Dry	0.244 J	0.311 J	0.156 J	Dry	0.142 J
GPW-3	Dry	<0.2 U	Dry	1.15	Dry	Dry	0.276 J	0.344 J	Dry	Dry	0.311 J
HBW-1	<0.2 U	<0.2 U	Dry	<0.2 U	Dry	Dry	<0.2 U	<0.2 U	Dry	Dry	<0.2 U
HBW-7	<0.2 U	<0.2 U	Dry	0.201 J	Dry	Dry	<0.2 U	0.124 J	Dry	Dry	<0.2 U
HBW-10	<0.2 U	<0.2 U	Dry	<0.2 U	Dry	Dry	<0.2 U	<0.2 U	Dry	Dry	<0.2 U

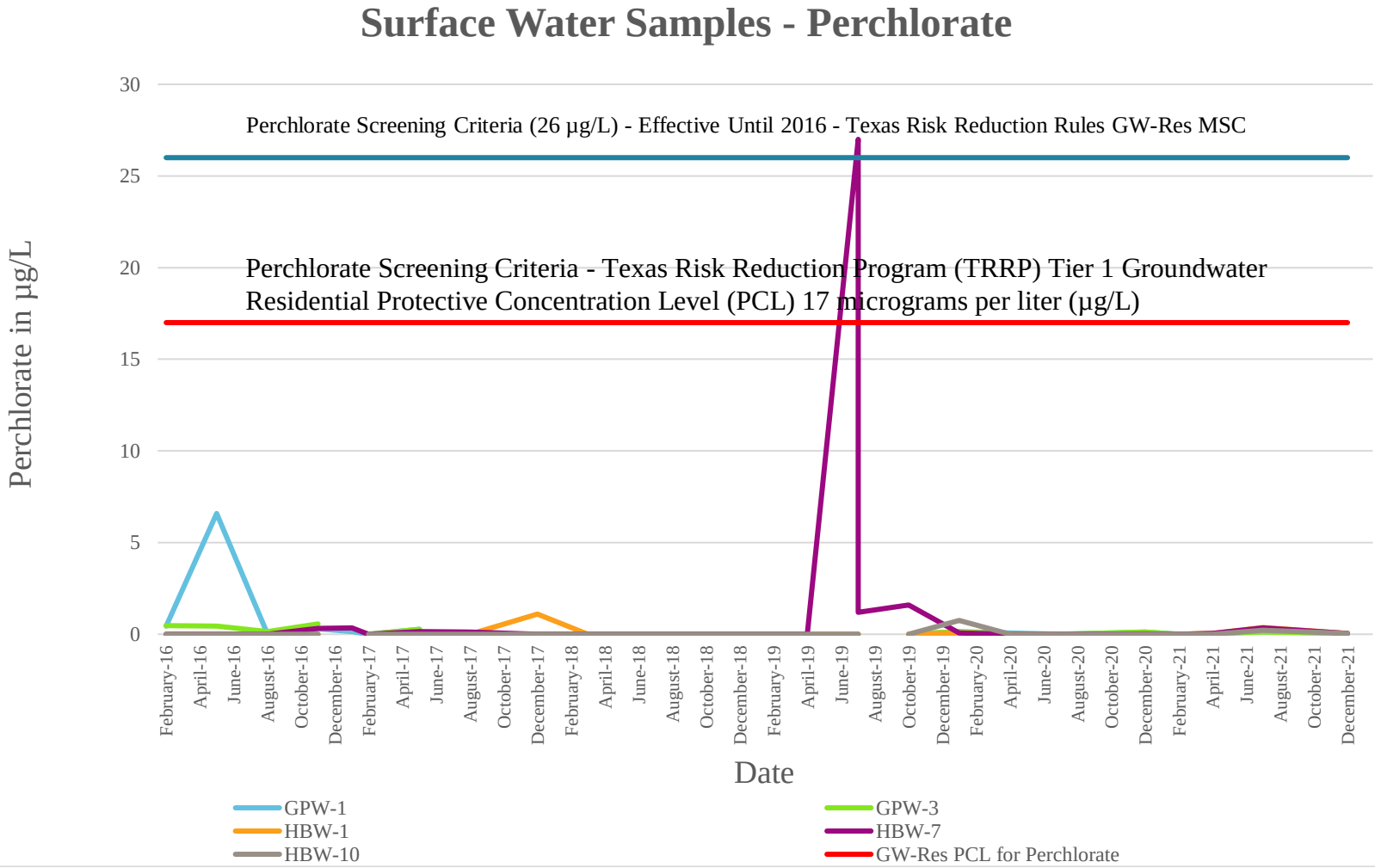
Quarter	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd
Creek Sample ID	Feb 2016	May 2016	Aug 2016	Nov 2016	Feb 2017	May 2017	Aug 2017	Dec 2017	Mar 2018	Jun 2018	Aug 2018
GPW-1	0.447	6.59	<0.2 U	0.301 J	<1 U	0.263	Dry	<2.0 U	<2.0 U	Dry	<2.0 U
GPW-3	0.474	0.457	0.141	0.563	<1 U	0.274	Dry	<2.0 U	<2.0 U	Dry	<2.0 U
HBW-1	<0.2 U	<0.2 U	<0.2 U	<0.2 U	<1 U	<0.2 U	<0.2 U	1.1 J	<2.0 U	Dry	<2.0 U
HBW-7	<0.2 U	<0.2 U	<0.2 U	0.318 J	<1 U	0.155	<0.2 U	<2.0 U	<2.0 U	Dry	<2.0 U
HBW-10	<0.2 U	<0.2 U	<0.2 U	<0.2 U	<1 U	<0.2 U	0.111 J	<2.0 U	<2.0 U	Dry	<2.0 U

NS – not sampled U – non-detect J – Estimated Dry – no surface water

Quarter	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st
Creek Sample ID	**Oct 2018**	**Jan 2019**	**Apr 2019**	**Jul 2019**	**Oct 2019**	**Jan 2020**	**Apr 2020**	**Jul 2020**	**Dec 2020**	**Feb 2021**
GPW-1	<2.0 U	<2.0 U	<2.0 U	<2.0 U	<2.0 U	0.163	0.0589 J	<0.05 U	0.110	<0.05 U
GPW-3	<2.0 U	<2.0 U	<2.0 U	<2.0 U	<2.0 U	0.156	0.0662 J	0.0326 J	0.108	<0.05 U
HBW-1	<2.0 U	<2.0 U	<2.0 U	<2.0 U	<2.0 U	0.0600 J	<0.05 U	<0.05 U	0.0374 J	<0.05 U
HBW-7	<2.0 U	<2.0 U	<2.0 U	27 (initial)/ 1.2 J (resample)	1.6 J	0.0761 J	<0.05 U	0.0318 J	0.0265 J	<0.05 U
HBW-10	<2.0 U	<2.0 U	<2.0 U	<2.0 U	<2.0 U	0.0782 J	<0.05 U	<0.05 U	<0.05 U	<0.05 U

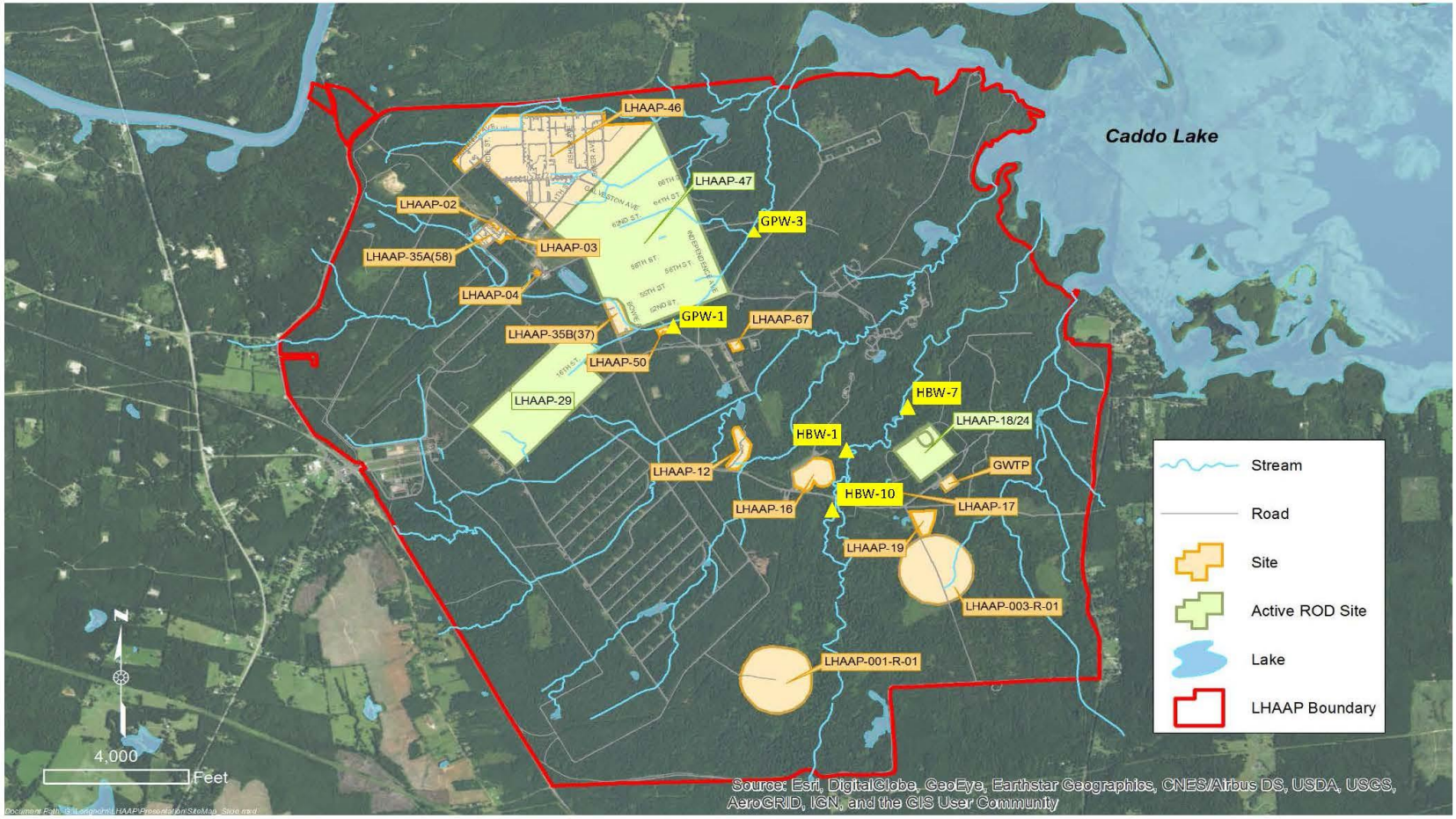
Quarter	2nd	3rd	4th
Creek Sample ID	**Apr 2021**	**Jul 2021**	**Dec 2021**
GPW-1	0.0268 J	0.154	0.0394 J
GPW-3	0.0321 J	0.122	0.0344 J
HBW-1	0.0410 J	0.369	<0.05 U
HBW-7	0.0373 J	0.348	0.0359 J
HBW-10	<0.05 U	0.207	0.0464 J

NS – not sampled U – non-detect J – Estimated Dry – no surface water



Note: Surface water at HBW-7 had a detection of 27 µg/L from a sample collected on 11 July 2019. Surface water at HBW-7 was resampled 19 days later (30 July 2019) with a detection of 1.2 J µg/L.

Longhorn Army Ammuntion Plant Creek Sampling Locations



Attachment B

Quality Control Summary Report

QUALITY CONTROL SUMMARY REPORT
2021 SURFACE WATER
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Prepared For:

U.S. Army Corps of Engineers

Prepared By:

bhate

1608 13th Avenue South, Suite 300
Birmingham, Alabama 35205
1-800-806-4001 • www.bhate.com

December 2021

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Table 2: Qualified Analytical Data
Table 3: Completeness by Method

1 INTRODUCTION

Bhate reviewed four data packages from ALS Environmental, Houston, Texas. Quarterly surface water samples were collected on February 8th, April 27th, July 6th, and December 22nd 2021 at Goose Prairie Creek and Harrison Bayou at the Longhorn Army Ammunition Plant (LHAAP), Karnack, Texas. Data were reviewed for conformance to the requirements of the following guidance documents: *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review* (USEPA, November 2020) and the *Final Basewide Uniform Federal Policy* [UFP] – *Quality Assurance Project Plan* [QAPP] *Longhorn Army Ammunition Plant* which is in Appendix C of the *Final Installation-Wide Work Plan for Longhorn Army Ammunition Plant Karnack, Texas* (Bhate, May 2018).

1.1 Intended Use of Data

Analyses requested included:

- SW6850 – Perchlorate

Table 1 lists the sample identification (ID) numbers and their associated laboratory ID numbers.

Table 2 lists qualified results with the associated quality control parameter that was exceeded.

1.2 Preservation and Holding Times

Sample ID data were evaluated for agreement with the chain-of-custody (COC). All samples were received in appropriate containers, within the proper temperature range, in good condition, and with the required signatures.

1.3 Calibrations

Initial calibration acceptance criteria are specified in Worksheet 24 of the project-specific QAPP. For perchlorate, the methods criteria are a relative standard deviation (RSD) less than or equal to 20 percent (%) or a correlation coefficient (r^2) $\geq$ 0.99.

All calibrations met the method criteria.

1.3.1 Continuing Calibration Verifications (CCV)

The continuing calibration verification (CCV) acceptance criteria are specified in Worksheet 24 of the project-specific QAPP. For perchlorate, the methods criteria are if the CCV is outside $\pm$15% difference (%D) the lab will reanalyze all samples since last acceptable CCV. If reanalysis cannot be performed, all results for perchlorate in all samples since last acceptable CCV are qualified J or UJ.

All CCVs were within the acceptance criteria.

1.4 Blanks

If the sample result for an associated sample was non-detect or less than 5X (10X for common laboratory contaminants) the analyte concentration in the blank, the corresponding sample result for the analyte was qualified UB. Where the sample result for the affected analyte was greater than 5X (10X) the amount in the blank, no qualifier was applied.

Perchlorate was not detected in the blanks.

1.5 Laboratory Control Sample (LCS)/Laboratory Control Sample Duplicate (LCSD)

LCS/LCSD recoveries were evaluated using limits defined for each method in Worksheet 15 of the project-specific QAPP.

All LCS/LCSD recoveries were within the control limits.

1.6 Matrix Spike (MS)/Matrix Spike Duplicate Sample (MSD)

MS/MSD recoveries were evaluated using limits defined in Worksheet 15 of the project-specific QAPP. When sample results were greater than 4x the spike amount, control limits were not applicable and require no qualification. Furthermore, if a MS/MSD analyses was performed on a batched (unrelated) sample no qualification was made to the sample data.

The project MS/MSD recoveries were within the control limits.

1.7 Internal Standards

When the percent recovery for an internal standard in a sample is outside the laboratory limits, the associated sample is qualified for the analytes associated with the internal standard(s) outside of the acceptance criteria.

Internal standard recoveries were within the acceptance criteria.

1.8 Field Precision

Precision is the measure of variability of individual sample measurements. Evaluation of field duplicates for precision was done using the Relative Percent Difference (RPD). The RPD is defined as the difference between two duplicate samples divided by the mean and expressed as a percent. Field duplicate RPD limits were set at <30% for groundwater matrices.

The RPD was within control limits for all parent and duplicate samples.

2 DATA USABILITY SUMMARY

The data are usable for the intended purposes of the project (see Table 3). The data quality objectives have been met for the project.

Table 1: Field Sample Identification and Laboratory Identification

Client Sample Identification	Laboratory Sample Identification	Perchlorate
HBW7_020821	HS21020466-01	X
HBW10_020821	HS21020466-02	X
HBW1_020821	HS21020466-03	X
HBW1_020821_a	HS21020466-04	X
GPW1_020821	HS21020466-05	X
GPW3_020821	HS21020466-06	X
HBW7_042721	HS21041459-01	X
HBW10_042721	HS21041459-02	X
HBW10_042721_a	HS21041459-03	X
HBW1_042721	HS21041459-04	X
GPW1_042721	HS21041459-05	X
GPW3_042721	HS21041459-06	X
HBW7_070621	HS21070328-01	X
HBW10_070621	HS21070328-02	X
HBW1_070621	HS21070328-03	X
HBW1_070621_a	HS21070328-04	X
GPW1_070621	HS21070328-05	X
GPW3_070621	HS21070328-06	X
HBW7_122221	E2101299-001	X
HBW7_122221_a	E2101299-002	X
HBW10_122221	E2101299-003	X
HBW1_122221	E2101299-004	X
GPW1_122221	E2101299-005	X
GPW3_122221	E2101299-006	X

Notes:

SW-846 - Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, X – Sample analyzed for indicated parameter

Table 2: Qualified Analytical Data

Client Sample Identification	Laboratory Sample Identification	Analyte Name	Data Validation Qualifier	Reason for Qualification
N/A	N/A	N/A	N/A	N/A

N/A – Not applicable

Table 3: Completeness by Method

Analysis	No. of Rejected Results	% Completeness
Perchlorate	0	100

Attachment C

Laboratory Data Packages

December 29, 2021 Service Request No:E2101299

Marcia Olive
Bhate Environmental Associates, Inc.
445 Union Blvd
Suite 129
Lakewood, CO 80228

Laboratory Results for: Quarterly Surface Water

Dear Marcia,

Enclosed are the results of the sample(s) submitted to our laboratory December 23, 2021
For your reference, these analyses have been assigned our service request number **E2101299.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current TNI standards, where applicable, and except as noted in the laboratory case narrative provided. All results are intended to be considered in their entirety and ALS Environmental is not responsible for use of less than the complete final report. Results apply only to the items submitted to the laboratory, as received for analysis. In accordance with the current TNI Standard, a statement on the estimated uncertainty of measurement of any quantitative analysis will be supplied upon request.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Corey Grandits
Project Manager

ADDRESS 10450 Stancliff Rd., Suite 210, Houston, TX 77099
PHONE +1 281 530 5656 | FAX +1 281 530 5887
ALS Group USA, Corp.
dba ALS Environmental

Certificate of Analysis

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

ALS Environmental

Client:	Bhate	**Service Request No.:**	E2101299
Project:	Perch Q	**Date Received:**	12/23/21
Sample Matrix:	W		

CASE NARRATIVE

All analyses were performed in adherence to the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier II. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Six samples were received for analysis at ALS Environmental in Houston on 12/23/21.

The samples were received in good condition and are consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Data Validation Notes and Discussion

Precision and Accuracy:

EQ2100705: Laboratory Control Spike/Duplicate Laboratory Control Spike (LCS/DLCS) samples were analyzed and reported in lieu of a MS/MSD for these extraction batches. The LCS-DLCS recoveries are within QC limits.

DoD Certification is held for the method/matrix/analytes provided in this report.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS group USA Corp dba ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

Client: Bhate Environmental Associates, Inc. **Service Request:**E2101299

Project: Quarterly Surface Water/NWO1312.0150

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
E2101299-001	HBW7_122221	12/22/2021	1010
E2101299-002	HBW7_122221_a	12/22/2021	1010
E2101299-003	HBW10_122221	12/22/2021	1025
E2101299-004	HBW1_122221	12/22/2021	1045
E2101299-005	GPW1_122221	12/22/2021	1105
E2101299-006	GPW3_122221	12/22/2021	1120

Service Request Summary

Folder #: **E2101299**
Client Name: Bhate Environmental Associates, Inc.
Project Name: Quarterly Surface Water
Project Number: NWO1312.0150

Report To: Marcia Olive
Bhate Environmental Associates, Inc.
445 Union Blvd
Lakewood, CO 80228
USA
Phone Number: 303-597-2450
Cell Number:
Fax Number:
E-mail: molive@bhate.com

Project Chemist: Corey Grandits
Originating Lab: HOUSTON
Logged By: CGRANDITS
Date Received: 12/23/21
Internal Due Date: 1/10/2022
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number: 2878
EDD: No EDD Specified

6 120 mL-Plastic Bottle Natural WM Unpreserved
Location: EHRMS-AirArch 1
Pressure Gas:

Lab Samp No.	Client Samp No	Matrix	Collected	HOUSTON ClO4 DOD/6850
E2101299-001	HBW7_122221	Water	12/22/21 1010	II
E2101299-002	HBW7_122221_a	Water	12/22/21 1010	II
E2101299-003	HBW10_122221	Water	12/22/21 1025	II
E2101299-004	HBW1_122221	Water	12/22/21 1045	II
E2101299-005	GPW1_122221	Water	12/22/21 1105	II
E2101299-006	GPW3_122221	Water	12/22/21 1120	II

Service Request Summary

Folder #: **E2101299**
Client Name: Bhate Environmental Associates, Inc.
Project Name: Quarterly Surface Water
Project Number: NWO1312.0150

Report To: Marcia Olive
Bhate Environmental Associates, Inc.
445 Union Blvd
Lakewood, CO 80228
USA
Phone Number: 303-597-2450
Cell Number:
Fax Number:
E-mail: molive@bhate.com

Project Chemist: Corey Grandits
Originating Lab: HOUSTON
Logged By: CGRANDITS
Date Received: 12/23/21
Internal Due Date: 1/10/2022
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number: 2878
EDD: No EDD Specified

6 120 mL-Plastic Bottle Natural WM Unpreserved
Location: EHRMS-AirArch 1
Pressure Gas:

Data Qualifiers

Lab Standard

+	Possible Tedlar bag artifact.
A	TIC is a suspected aldol-condensation product
B	Analyte found in the associated method blank as well as in the sample.
BC	Reported results are not blank corrected.
BH	The back section of the tube yielded higher results than the front.
BT	Results indicated possible breakthrough; back section >=10% front section.
C	Result identification confirmed.
D	Compound identified in an analysis at a secondary dilution factor
D	Spike was diluted out
DE	Reported results are corrected for desorption efficiency.
E	Estimated value. Concentration above calibration range
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
H1	Sample analysis performed past holding time. See case narrative.
H2	Initial analysis within holding time. Reanalysis for the required dilution was past holding time.
H3	Sample was received and analyzed past holding time.
H4	Sample was extracted past required extraction holding time, but analyzed within analysis holding time. See case narrative.
I	Internal standard not within the specified limits. See case narrative.
J	Estimated Value. Concentration found below MRL.
K	A deflection in the QC ion may indicate interference with the quantitation of this ion. The concentration of this analyte should be considered as an estimate.
K	Analyte was detected above the method reporting limit prior to normalization.
K	The reference ion ratio was outside acceptance criteria, which may indicate a potential bias to this result.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
L1	Laboratory control sample recovery outside the specified limits; results may be biased high.
L2	Laboratory control sample recovery outside the specified limits; results may be biased low.
L3	Laboratory control sample recovery outside the specified limits.
M	Matrix interference; results may be biased high.
M	The duplicate injection precision not met.
M1	Matrix interference due to coelution with a non-target compound; results may be biased high.
N	Presumptive evidence of a compound for TICs that have been identified based on a mass spectral library search.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.

Data Qualifiers

Lab Standard

O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
P	Indicates chlorodiphenyl ether interference present at the retention time of the target compound.
P	Pesticide/Aroclor target analyte > 40% difference for detected concentrations between GC columns
Q	Indicates as estimated value because the P and P + 2 theoretical abundance ratio does not meet method criteria.
R	Duplicate Precision not met.
R1	Duplicate precision not within the specified limits; however, the results are below the MRL and considered estimated.
S	Surrogate recovery not within specified limits.
S	The reported value was determined by the Method of Standard Additions (MSA).
T	Analyte is a tentatively identified compound, result is estimated.
U	Compound was analyzed for, but was not detected (ND).
V1	The continuing calibration verification standard was outside (biased high) the specified limits for this compound.
V2	The continuing calibration verification standard was outside (biased low) the specified limits for this compound.
W	Result quantified, but the corresponding peak was detected outside the generated retention time window.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
X	See case narrative.
Y	Recovery outside limits
Y	The chromatogram resembles a petroleum product but does not match the calibration standard.
Z	The chromatogram does not resemble a petroleum product.
i	The MRL/MDL has been elevated due to a matrix interference.

ALS Laboratory Group

Acronyms

Cal	Calibration
Conc	CONCentration
Dioxin(s)	Polychlorinated dibenzo-p-dioxin(s)
EDL	Estimated Detection Limit
EMPC	Estimated Maximum Possible Concentration
Flags	Data qualifiers
Furan(s)	Polychlorinated dibenzofuran(s)
g	Grams
ICAL	Initial CALibration
ID	IDentifier
Ions	Masses monitored for the analyte during data acquisition
L	Liter (s)
LCS	Laboratory Control Sample
DLCS	Duplicate Laboratory Control Sample
MB	Method Blank
MCL	Method Calibration Limit
MDL	Method Detection Limit
mL	Milliliters
MS	Matrix Spiked sample
DMS	Duplicate Matrix Spiked sample
NO	Number of peaks meeting all identification criteria
PCDD(s)	Polychlorinated dibenzo-p-dioxin(s)
PCDF(s)	Polychlorinated dibenzofuran(s)
ppb	Parts per billion
ppm	Parts per million
ppq	Parts per quadrillion
ppt	Parts per trillion
QA	Quality Assurance
QC	Quality Control
Ratio	Ratio of areas from monitored ions for an analyte
% Rec.	Percent recovery
RPD	Relative Percent Difference
RRF	Relative Response Factor
RT	Retention Time
SDG	Sample Delivery Group
S/N	Signal-to-noise ratio
TEF	Toxicity Equivalence Factor
TEQ	Toxicity Equivalence Quotient

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ALS Environmental

State Certifications, Accreditations, and Licenses

Agency	Number	Expire Date
Arkansas Department of Environmental Quality	19-028-0	6/30/2022
Arkansas Department of Environmental Quality	21-022-0	3/26/2022
Florida Department of Health	E87611-33	6/30/2022
Hawaii Department of Health	2021-2022	4/30/2022
Kansas Department of Health and Environment	E-10352 2022	7/31/2022
Louisiana Department of Environmental Quality	03087-2021	6/30/2022
Louisiana Department of Health and Hospitals	LA028-2021	12/31/2021
Maine Department of Health and Human Services	2020016	6/5/2022
Minnesota Department of Health	2021671	12/31/2021
Nevada Department of Concervation and Natural Resources	TX026932022-1	7/31/2022
New Hampshire Environmental Laboratory Accreditation Program	209421	4/24/2022
Pennsylvania Department of Environmental Protection	68-03441-015	6/30/2022
Tennessee Department of Environment and Concervation	04016-2021	4/30/2022
Texas Commision on Environmental Quality	T104704231-21-27	4/30/2022
Texas Commision on Environmental Quality	T104704231-21-28	5/1/2022
United States Department of Agriculture	P330-19-00299	10/10/2022

Chain of Custody

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Phone (713)266-1599 Fax (713)266-0130
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bhate ENVIRONMENTAL CONSTRUCTION ENERGY

1608 13th Avenue South, Suite 300
Birmingham Alabama 35205
Tel: 205-918-4000
Fax: 205-918-4050

Page: _____ of _____

Project/Phase No: NWO1312.0150

COC Number(1): _____

LIMS Number: _____

Chain of Custody and Analytical Request

Facility/Base I.D.: LHAAP

Project/Site Name: LHAAP / Quarterly Surface Water Samples

Client Name:

Collected by: Scott Beesinger

Field Sample ID (30 Characters Max)	ERPIMS LOCID (15 Characters Max)	Date Collected (dd-mmm-yyyy)	Time Collected (Military) (hhmm)	Sample Depth (beginning - ending)	SA Code (2)	Sample Number (3)	Sample Matrix (4)	Number of containers	PERCHLORATE										Ambient Blank Lot Control Number	Equipment Blank Lot Control Number	Trip Blank Lot Control Number	Cooler ID
								Sample Analysis Requested (5)											Quality Assurance Samples (6)			
HBW7_122221		22 Dec 2021	10:10	-	N		WS	1	X													
HBW7_122221_a		22 Dec 2021	10:10	-	FD		WS	1	X													
HBW10_122221		22 Dec 2021	10:25	-	N		WS	1	X													
HBW1_122221		22 Dec 2021	10:45		N		WS	1	X													
GPW1_122221		22 Dec 2021	11:05		N		WS	1	X													
GPW3_122221		22 Dec 2021	11:20	-	N		WS	1	X													
				-																		
				-																		
				-																		
				-																		
				-																		

COMMENTS:

Standard TAT

Custody Transfers Prior to Receipt by Laboratory

Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1. Scott Beesinger	12/22/21	1400	1.	12/23/2021	11:25
2.			2.		
3.			3.		

Sample Delivery Details / Laboratory Receipt

Delivered Directly to Lab: _____ Shipped No.:

_____ Method of Shipment: _____

_____ Fed Ex _____ Airbill Number:

_____ Analytical Lab: ALS 10450 Stancliff Rd. Suite 210 Houston, TX 77099 (281) 530-5656

ATTN: SONIA WEST Lab Recipient: Delivery Date/Time:

1.) Chain of Custody Number = date collected + custody number (e.g. 09-02-1999-01)

2.) Sample Type (SA) Codes: N = Normal Sample, TB = Trip Blank (-c) Sample, FD = Field Duplicate (-a) Samples, FR = Field Replicate (-b) Samples, EB = Equipment Blank (-d) Samples, MS = Matrix Spike, SD = Matrix Spike Duplicate, AB = Ambient Blank (-e)

3.) Sample Number: Unique sample number collected from a particular location per day. (e.g. Groundwater sample collected from MW-1 on 10/10/99 = 01, if sampled again on 10/10/99 = 02, etc.)

4.) Matrix Codes: GS = Soil Gas, WG = Groundwater, WS = Surface Water, SO = Soil, SE = Sediment, SL = Sludge, SS = Surface Soil Samples, WQ = Aqueous Blank Samples (trip, equipment, ambient, etc), SQ = Soil Blanks

5.) Sample Analysis Requested: Analytical method requested and number of containers provided for each.

6.) Quality assurance samples are assigned by date (ddmmyy) and the sample number associated with the sample (01, 02, etc) (e.g. Equipment blank collected in association with MW-1 on 10/10/99 will be designated 10109901 in the Equipment Blank Lot Control

47023 0.8 #31 cline

ALS Environmental

Cooler Receipt Form

Project Chemist CG

Client/Project RHATE

Thermometer ID 1821

Date/Time Received: 12.22.21 Initials: PG

Date/Time Logged in: 12.23.21 Initials CG

1. Method of delivery: ○ US Mail ◉ Fed Ex ○ UPS ○ DHL ○ Courier ○ Client
2. Samples received in: ◉ Cooler ○ Box ○ Envelope ○ Other _____
3. Were custody seals on coolers? ◉ Yes ○ No
   Were they intact? ◉ Yes ○ No ○ N/A
   Were they signed and dated? ◉ Yes ○ No ○ N/A
   If yes, how many and where? 1-F
4. Packing Material: ○ Inserts ◉ Baggies ○ Bubble Wrap ○ Gel Packs ◉ Wet Ice ○ Sleeves ○ Other _____
5. Foreign or Regulated Soil? ○ Yes ○ No Location of Sampling: _____

Cooler Tracking Number	COC ID	Date Opened	Time Opened	Opened By	Temp. °C	Temp Blank?
4809 7840 9267		12.22.21	1124	PG	0.8	☐
						☐
						☐
						☐

6. Were custody papers properly filled out (ink, signed, dated, etc)? ◉ Yes ○ No
7. Did all bottles arrive in good condition (not broken, no signs of leakage)? ◉ Yes ○ No
8. Were all sample labels complete (i.e., sample ID, analysis, preservation, etc)? ◉ Yes ○ No
9. Were appropriate bottles/containers and volumes received for the requested tests? ◉ Yes ○ No
10. Did sample labels and tags agree with custody documents? ◉ Yes ○ No

Notes, Discrepancies, & Resolutions:

Service request Label:

HS-HRMSCoolerReceipt R1.0

ALS Environmental - Houston HRMS

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F: +1 713 266 1599
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SAMPLE ACCEPTANCE POLICY

This policy outlines the criteria samples must meet to be accepted by ALS Environmental – Houston HRMS.

Cooler Custody Seals (desirable, mandatory if specified in SAP):

- ✓ Intact on outside of cooler, signed and dated

Chain-of-Custody (COC) documentation (mandatory):

The following is required on each COC:

- ✓ Sample ID, the location, date and time of collection, collector's name, preservation type, sample type, and any other special remarks concerning the sampleThe COC must be completed in ink.
- ✓ Signature and date of relinquishing party.

In the absence of a COC at sample receipt, the COC will be requested from the client.

Sample Integrity (mandatory):

Samples are inspected upon arrival to ensure that sample integrity was not compromised during transfer to the laboratory.

- ✓ Sample containers must arrive in good condition (not broken or leaking).
- ✓ Samples must be labeled appropriately, including Sample IDs, and requested test using durable labels and indelible ink.
- ✓ The correct type of sample bottle must be used for the method requested.
- ✓ An appropriate sample volume, or weight, must be received.
- ✓ Sample IDs and number of containers must reconcile with the COC.
- ✓ Samples must be received within the method defined holding time.

Temperature Requirement (varies by sample matrix):

- ✓ Aqueous and Non-aqueous samples must be shipped and stored cold, at 0 to 6ºC.
- ✓ Tissue samples must be shipped and stored frozen, at -20 to -10ºC.
- ✓ Air samples are shipped and stored cold, at 0 to 6ºC
- ✓ The sample temperature must be recorded on the COC

All cooler inspections are documented on the Cooler Receipt Form (CRF). A separate CRF is completed for each service request. Any samples not meeting the above criteria are noted on the CRF and the Project Manager notified. The Project Manager must resolve any sample integrity issues with the client prior to proceeding with the analysis. Such resolutions are documented in writing and filed with the project folder. Data associated with samples received outside of this acceptance policy will be qualified on the case narrative of the final report

Preparation Information Benchsheets

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Phone (713)266-1599 Fax (713)266-0130
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Preparation Information Benchsheet

Prep Run#: 393248 **Prep WorkFlow:** GenExt28Day **Status:** Prepped
Team: Semivoa GCMS/GRIVERA **Prep Method:** Method **Prep Date/Time:** 12/28/21 13:14

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E2101299-001	HBW7_122221	.01	6850/ClO4 DOD			Water	10mL	
2	E2101299-002	HBW7_122221_a	.01	6850/ClO4 DOD			Water	10mL	
3	E2101299-003	HBW10_122221	.01	6850/ClO4 DOD			Water	10mL	
4	E2101299-004	HBW1_122221	.01	6850/ClO4 DOD			Water	10mL	
5	E2101299-005	GPW1_122221	.01	6850/ClO4 DOD			Water	10mL	
6	E2101299-006	GPW3_122221	.01	6850/ClO4 DOD			Water	10mL	
7	EQ2100705-01	MB		6850/ClO4 DOD			Liquid	10mL	
8	EQ2100705-02	LCS		6850/ClO4 DOD			Liquid	10mL	
9	EQ2100705-03	DLCS		6850/ClO4 DOD			Liquid	10mL	

Spiking Solutions

Name: Sodium Perchlorate 1 ug/mL (IS) (18-O) as CLO4 Inventory ID 214765 Logbook Ref: Sodium Perchlorate Expires On: 12/11/2022

E2101299-001 100.00µL E2101299-002 100.00µL E2101299-003 100.00µL E2101299-004 100.00µL E2101299-005 100.00µL E2101299-006 100.00µL
EQ2100705-01 100.00µL EQ2100705-02 100.00µL EQ2100705-03 100.00µL

Name: Perchlorate Intermediate Stock1 Inventory ID 219595 Logbook Ref: Perchlorate Expires On: 03/15/2022

EQ2100705-02 1.00µL EQ2100705-03 1.00µL

Preparation Materials

Water HPLC Grade 08/03/2021 Water (218530) 537M Glass Culture Tubes 537M Glass Tubes (218064) 6850 0.45um syringe filters 6850 Syringe Filters (219639)

Preparation Steps

Step: Preparation
Started: 12/28/21 13:14
Finished: 12/28/21 14:10
By: GRIVERA
Comments

Comments: _____

Reviewed By: GR Date: 12/28/21

Analytical Results

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ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Bhate Environmental Associates, Inc.	**Service Request:**	E2101299
Project:	Quarterly Surface Water/NWO1312.0150	**Date Collected:**	12/22/21 1010
Sample Matrix:	Water	**Date Received:**	12/23/21
Sample Name:	HBW7_122221	**Units:**	µg/L
Lab Code:	E2101299-001	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**0.0359**	J	0.100	0.0500	0.0250	1	12/28/21	12/29/21 13:52	393248	750447	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Bhate Environmental Associates, Inc.	**Service Request:**	E2101299
Project:	Quarterly Surface Water/NWO1312.0150	**Date Collected:**	12/22/21 1010
Sample Matrix:	Water	**Date Received:**	12/23/21
Sample Name:	HBW7_122221_a	**Units:**	µg/L
Lab Code:	E2101299-002	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**0.0353**	J	0.100	0.0500	0.0250	1	12/28/21	12/29/21 14:00	393248	750447	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Bhate Environmental Associates, Inc.	**Service Request:**	E2101299
Project:	Quarterly Surface Water/NWO1312.0150	**Date Collected:**	12/22/21 1025
Sample Matrix:	Water	**Date Received:**	12/23/21
Sample Name:	HBW10_122221	**Units:**	µg/L
Lab Code:	E2101299-003	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**0.0464**	J	0.100	0.0500	0.0250	1	12/28/21	12/29/21 14:07	393248	750447	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Bhate Environmental Associates, Inc.	**Service Request:**	E2101299
Project:	Quarterly Surface Water/NWO1312.0150	**Date Collected:**	12/22/21 1045
Sample Matrix:	Water	**Date Received:**	12/23/21
Sample Name:	HBW1_122221	**Units:**	µg/L
Lab Code:	E2101299-004	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	ND	U	0.100	0.0500	0.0250	1	12/28/21	12/29/21 14:15	393248	750447	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Bhate Environmental Associates, Inc.	**Service Request:**	E2101299
Project:	Quarterly Surface Water/NWO1312.0150	**Date Collected:**	12/22/21 1105
Sample Matrix:	Water	**Date Received:**	12/23/21
Sample Name:	GPW1_122221	**Units:**	µg/L
Lab Code:	E2101299-005	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**0.0394**	J	0.100	0.0500	0.0250	1	12/28/21	12/29/21 14:23	393248	750447	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Bhate Environmental Associates, Inc.	**Service Request:**	E2101299
Project:	Quarterly Surface Water/NWO1312.0150	**Date Collected:**	12/22/21 1120
Sample Matrix:	Water	**Date Received:**	12/23/21
Sample Name:	GPW3_122221	**Units:**	µg/L
Lab Code:	E2101299-006	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**0.0344**	J	0.100	0.0500	0.0250	1	12/28/21	12/29/21 14:31	393248	750447	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Bhate Environmental Associates, Inc.	**Service Request:**	E2101299
Project:	Quarterly Surface Water/NWO1312.0150	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	EQ2100705-01	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	ND	U	0.100	0.0500	0.0250	1	12/28/21	12/29/21 12:19	393248	750447	

Accuracy & Precision

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QA/QC Report

Client:	Bhate Environmental Associates, Inc.	**Service Request:**	E2101299
Project:	Quarterly Surface Water/NWO1312.0150	**Date Analyzed:**	12/29/21
Sample Matrix:	Water		

Lab Control Sample Summary

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Units:**	µg/L
Prep Method:	Method	**Basis:**	NA
		Extraction Lot:	393248

	Lab Control Sample EQ2100705-02			Duplicate Lab Control Sample EQ2100705-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	0.118	0.100	118	0.119	0.100	119	84 - 119	1	15

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Bhate Environmental Associates, Inc.	**Service Request:**	E2101299
Project:	Quarterly Surface Water/NWO1312.0150	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2100705-02	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**0.118**		0.100	0.0500	0.0250	1	12/28/21	12/29/21 12:42	393248	750447	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Bhate Environmental Associates, Inc.	**Service Request:**	E2101299
Project:	Quarterly Surface Water/NWO1312.0150	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2100705-03	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**0.119**		0.100	0.0500	0.0250	1	12/28/21	12/29/21 13:44	393248	750447	

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February 25, 2021

Marcia Olive
Bhate Environmental Associates, Inc.
445 Union Blvd Ste 129
Lakewood, CO 80228

Work Order: **HS21020466**

Laboratory Results for: **LHAAP /Quarterly Surface Samples**

Dear Marcia Olive,

ALS Environmental received 6 sample(s) on Feb 10, 2021 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Generated By: COREY.GRANDITS
RJ Modashia
Project Manager

ALS Houston, US Date: 25-Feb-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP /Quarterly Surface Samples
Work Order: HS21020466

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS21020466-01	HBW7_020821	Surface Water		08-Feb-2021 09:10	10-Feb-2021 10:05	☐
HS21020466-02	HBW10_020821	Surface Water		08-Feb-2021 09:25	10-Feb-2021 10:05	☐
HS21020466-03	HBW1_020821	Surface Water		08-Feb-2021 09:38	10-Feb-2021 10:05	☐
HS21020466-04	HBW1_020821_a	Surface Water		08-Feb-2021 09:38	10-Feb-2021 10:05	☐
HS21020466-05	GPW1_020821	Surface Water		08-Feb-2021 09:27	10-Feb-2021 10:05	☐
HS21020466-06	GPW3_020821	Surface Water		08-Feb-2021 10:13	10-Feb-2021 10:05	☐

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 25-Feb-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP /Quarterly Surface Samples
Work Order: HS21020466

CASE NARRATIVE

Work Order Comments

• The analysis for Perchlorate was subcontracted to our ALS Houston TX, High Resolution Lab. Final report attached.

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 25-Feb-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP /Quarterly Surface Samples
Sample ID: HBW7_020821
Collection Date: 08-Feb-2021 09:10

ANALYTICAL REPORT
WorkOrder:HS21020466
Lab ID:HS21020466-01
Matrix:Surface Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	25-Feb-2021 11:16

Note: See Qualifiers Page for a list of qualifiers and their explanation.

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ALS Houston, US Date: 25-Feb-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP /Quarterly Surface Samples
Sample ID: HBW10_020821
Collection Date: 08-Feb-2021 09:25

ANALYTICAL REPORT
WorkOrder:HS21020466
Lab ID:HS21020466-02
Matrix:Surface Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	25-Feb-2021 11:16

Note: See Qualifiers Page for a list of qualifiers and their explanation.

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 25-Feb-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP /Quarterly Surface Samples
Sample ID: HBW1_020821
Collection Date: 08-Feb-2021 09:38

ANALYTICAL REPORT
WorkOrder:HS21020466
Lab ID:HS21020466-03
Matrix:Surface Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	25-Feb-2021 11:16

Note: See Qualifiers Page for a list of qualifiers and their explanation.

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ALS Houston, US Date: 25-Feb-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP /Quarterly Surface Samples
Sample ID: HBW1_020821_a
Collection Date: 08-Feb-2021 09:38

ANALYTICAL REPORT
WorkOrder:HS21020466
Lab ID:HS21020466-04
Matrix:Surface Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	25-Feb-2021 11:16

Note: See Qualifiers Page for a list of qualifiers and their explanation.

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ALS Houston, US Date: 25-Feb-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP /Quarterly Surface Samples
Sample ID: GPW1_020821
Collection Date: 08-Feb-2021 09:27

ANALYTICAL REPORT
WorkOrder:HS21020466
Lab ID:HS21020466-05
Matrix:Surface Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	25-Feb-2021 11:16

Note: See Qualifiers Page for a list of qualifiers and their explanation.

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ALS Houston, US Date: 25-Feb-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP /Quarterly Surface Samples
Sample ID: GPW3_020821
Collection Date: 08-Feb-2021 10:13

ANALYTICAL REPORT
WorkOrder:HS21020466
Lab ID:HS21020466-06
Matrix:Surface Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	25-Feb-2021 11:16

Note: See Qualifiers Page for a list of qualifiers and their explanation.

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ALS Houston, US Date: 25-Feb-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP /Quarterly Surface Samples
WorkOrder: HS21020466

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R378562 (0)	**Test Name :** SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)				**Matrix:** Surface Water	
HS21020466-01	HBW7_020821	08 Feb 2021 09:10			25 Feb 2021 11:16	1
HS21020466-02	HBW10_020821	08 Feb 2021 09:25			25 Feb 2021 11:16	1
HS21020466-03	HBW1_020821	08 Feb 2021 09:38			25 Feb 2021 11:16	1
HS21020466-04	HBW1_020821_a	08 Feb 2021 09:38			25 Feb 2021 11:16	1
HS21020466-05	GPW1_020821	08 Feb 2021 09:27			25 Feb 2021 11:16	1
HS21020466-06	GPW3_020821	08 Feb 2021 10:13			25 Feb 2021 11:16	1

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ALS Houston, US Date: 25-Feb-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP /Quarterly Surface Samples
WorkOrder: **HS21020466**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL/SDL

Acronym	Description
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitaion Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

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CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	20-030-0	26-Mar-2021
California	2919, 2020-2021	30-Apr-2021
Dept of Defense	PJLA L20-507	22-Dec-2021
Florida	E87611-30-07/01/2020	30-Jun-2021
Illinois	2000322020-4	09-May-2021
Kansas	E-10352 2020-2021	31-Jul-2021
Kentucky	123043, 2020-2021	30-Apr-2021
Louisiana	03087, 2020-2021	30-Jun-2021
North Carolina	624-2021	31-Dec-2021
North Dakota	R-193 2020-2021	30-Apr-2021
Oklahoma	2020-165	31-Aug-2021
Texas	T104704231-20-26	30-Apr-2021

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ALS Houston, US Date: 25-Feb-21

Sample Receipt Checklist

Work Order ID: HS21020466 **Date/Time Received:** **10-Feb-2021 10:05**

Client Name: Bhate Environmental **Received by:** **Jared R. Makan**

Completed By: */S/ Paresh M. Giga* 10-Feb-2021 15:10 **Reviewed by:** */S/ RJ Modashia* 10-Feb-2021 18:22

eSignature Date/Time eSignature Date/Time

Matrices: **SW** Carrier name: **FedEx**

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	1 Page(s)
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	COC IDs:None
Samplers name present on COC?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☐	No ☑	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	

Temperature(s)/Thermometer(s):	2.1C U/C	IR31
Cooler(s)/Kit(s):	46709	
Date/Time sample(s) sent to storage:	2/10/2021 13:20	

Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑

pH adjusted by:

Login Notes: Sample : GPW1_020821 times differ -
COC - 09:27 Label - 09:57

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

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bhate ENVIRONMENTAL CONSTRUCTION ENERGY

1608 13th Avenue South, Suite 300
Birmingham Alabama 35205
Tel: 205-918-4000
Fax: 205-918-4050

Chain of Custody and Analytical Request

Page: _____ of _____

Project/Phase No: NWO1312.0150

COC Number(1): _____

LIMS Number: _____

Facility/Base I.D.: LHAAP

Project/Site Name: LHAAP / Quarterly Surface Water Samples

Client Name:

Collected by: Scott Beesinger

Field Sample ID (30 Characters Max)	ERPIMS LOCID (15 Characters Max)	Date Collected (dd-mmm-yyyy)	Time Collected (Military) (hhmm)	Sample Depth (beginning - ending)	SA Code (2)	Sample Number (3)	Sample Matrix (4)	Number of containers	PERCHLORATE	Ambient Blank Lot Control Number	Equipment Blank Lot Control Number	Trip Blank Lot Control Number	Cooler ID
HBW7_020821		08 Feb 2021	09:10	-	N		WS	1	X				
HBW10_020821		08 Feb 2021	09:25	-	N		WS	1	X				
HBW1_020821		08 Feb 2021	09:38	-	N		WS	1	X				
HBW1_020821_a		08 Feb 2021	09:38		FD		WS	1	X				
GPW1_020821		08 Feb 2021	09:27		N		WS	1	X				
GPW3_020821		08 Feb 2021	10:13	-	N		WS	1	X				
				-									
				-									
				-									
				-									
				-									

Sample Analysis Requested (5)

Quality Assurance Samples (6)

HS21020466
Bhate Environmental Associates, Inc.
LHAAP /Quarterly Surface Samples

COMMENTS:

Standard TAT

Custody Transfers Prior to Receipt by Laboratory

Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1. Scott Beesinger	2/9/21	1430	1. [illegible]	2/10/21	10:05
2.			2.		
3.			3.		

Cooler 46709 Temp 2.1°C 1231 CFO

Sample Delivery Details / Laboratory Receipt

Delivered Directly to Lab: _____ Shipped No.:

_____ Method of Shipment: _____

_____ Fed Ex _____ Airbill Number:

_____ Analytical Lab: ALS 10450 Stancliff Rd. Suite 210 Houston, TX 77099 (281) 530-5656

ATTN: SONIA WEST Lab Recipient: Delivery Date/Time:

1.) Chain of Custody Number = date collected + custody number (e.g. 09-02-1999-01)

2.) Sample Type (SA) Codes: N = Normal Sample, TB = Trip Blank (-c) Sample, FD = Field Duplicate (-a) Samples, FR = Field Replicate (-b) Samples, EB = Equipment Blank (-d) Samples, MS = Matrix Spike, SD = Matrix Spike Duplicate, AB = Ambient Blank (-e)

3.) Sample Number: Unique sample number collected from a particular location per day. (e.g. Groundwater sample collected from MW-1 on 10/10/99 = 01, if sampled again on 10/10/99 = 02, etc.)

4.) Matrix Codes: GS = Soil Gas, WG = Groundwater, WS = Surface Water, SO = Soil, SE = Sediment, SL = Sludge, SS = Surface Soil Samples, WQ = Aqueous Blank Samples (trip, equipment, ambient, etc), SQ = Soil Blanks

5.) Sample Analysis Requested: Analytical method requested and number of containers provided for each.

6.) Quality assurance samples are assigned by date (ddmmyy) and the sample number associated with the sample (01, 02, etc) (e.g. Equipment blank collected in association with MW-1 on 10/10/99 will be designated 10109901 in the Equipment Blank Lot Control

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ALS
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887

46079

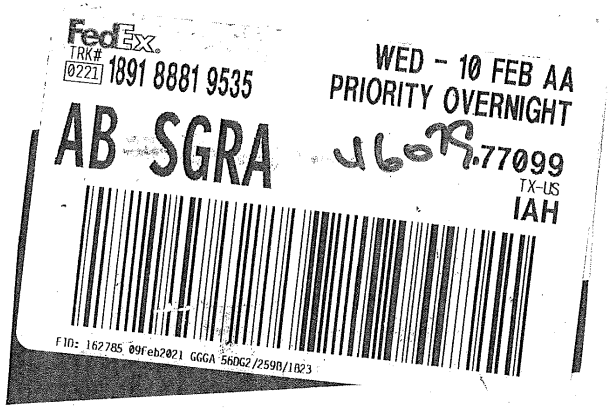
Date:
Name:
Compan
y:

CUSTODY SEAL

2/9/21 Time: 1430
Scott Baggingur
BAKER

Seal Broken By:

Date: 2/10/21



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February 24, 2021 Service Request No:E2100167

RJ Modashia
ALS Laboratory Group
10450 Stancliff Road
Suite 210
Houston, TX 77099-4338

Laboratory Results for: HS21020466

Dear RJ,

Enclosed are the results of the sample(s) submitted to our laboratory February 10, 2021
For your reference, these analyses have been assigned our service request number **E2100167.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current TNI standards, where applicable, and except as noted in the laboratory case narrative provided. All results are intended to be considered in their entirety and ALS Environmental is not responsible for use of less than the complete final report. Results apply only to the items submitted to the laboratory, as received for analysis. In accordance with the current TNI Standard, a statement on the estimated uncertainty of measurement of any quantitative analysis will be supplied upon request.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Corey Grandits
Project Manager

ADDRESS 10450 Stancliff Rd., Suite 210, Houston, TX 77099
PHONE +1 281 530 5656 | FAX +1 281 530 5887
ALS Group USA, Corp.
dba ALS Environmental

Certificate of Analysis

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

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ALS Environmental

Client:	ALS Houston	**Service Request No.:**	E2100167
Project:	HS21020466	**Date Received:**	02/10/21
Sample Matrix:	W		

CASE NARRATIVE

All analyses were performed in adherence to the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier IV. When appropriate to the method, method blank results have been reported 'with each analytical test.

Sample Receipt

Six samples were received for analysis at ALS Environmental in Houston on 02/10/21.

The samples were received in good condition and are consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Data Validation Notes and Discussion

Precision and Accuracy:

EQ2100084: Laboratory Control Spike/Duplicate Laboratory Control Spike (LCS/DLCS) samples were analyzed and reported in lieu of a MS/MSD for this extraction batch. LCS/LCSD RPD exceed QC limits; the individual recoveries met acceptance criteria.

DoD Certification is held for the method/matrix/analytes provided in this report.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS group USA Corp dba ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

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Client: ALS Environmental - US **Service Request:**E2100167
Project: HS21020466

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
E2100167-001	HBW7_020821	2/8/2021	0910
E2100167-002	HBW10_020821	2/8/2021	0925
E2100167-003	HBW1_020821	2/8/2021	0938
E2100167-004	HBW1_020821_a	2/8/2021	0938
E2100167-005	GPW1_020821	2/8/2021	0927
E2100167-006	GPW3_020821	2/8/2021	1013

Service Request Summary

Folder #: **E2100167**
Client Name: ALS Environmental - US
Project Name: HS21020466
Project Number:

Report To: RJ Modashia
ALS Laboratory Group
10450 Stancliff Road
Houston, TX 77099-4338
USA
Phone Number: 281-530-5656
Cell Number:
Fax Number: 281-530-5887
E-mail: rj.modashia@alsglobal.com

Project Chemist: Corey Grandits
Originating Lab: HOUSTON
Logged By: CGRANDITS
Date Received: 02/10/21
Internal Due Date: 2/24/2021
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number: HS21020466
EDD: No EDD Specified

6 125 mL-Glass Bottle NM AMBER Teflon Liner Unpreserved
Location: EHRMS-WIC 4A
Pressure Gas:

Lab Samp No.	Client Samp No	Matrix	Collected	HOUSTON ClO4 DOD/6850
E2100167-001	HBW7_020821	Water	02/08/21 0910	**IV**
E2100167-002	HBW10_020821	Water	02/08/21 0925	**IV**
E2100167-003	HBW1_020821	Water	02/08/21 0938	**IV**
E2100167-004	HBW1_020821_a	Water	02/08/21 0938	**IV**
E2100167-005	GPW1_020821	Water	02/08/21 0927	**IV**
E2100167-006	GPW3_020821	Water	02/08/21 1013	**IV**

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Service Request Summary

Folder #: **E2100167**
Client Name: ALS Environmental - US
Project Name: HS21020466
Project Number:

Report To: RJ Modashia
ALS Laboratory Group
10450 Stancliff Road
Houston, TX 77099-4338
USA
Phone Number: 281-530-5656
Cell Number:
Fax Number: 281-530-5887
E-mail: rj.modashia@alsglobal.com

Project Chemist: Corey Grandits
Originating Lab: HOUSTON
Logged By: CGRANDITS
Date Received: 02/10/21
Internal Due Date: 2/24/2021
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number: HS21020466
EDD: No EDD Specified

6 125 mL-Glass Bottle NM AMBER Teflon Liner Unpreserved
Location: EHRMS-WIC 4A
Pressure Gas:

Test Comments:

Group	Test/Method	Samples	Comments
Semivoa GCMS	ClO4 DOD/6850	6	II Due 2/24, IV due 3/3

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Data Qualifiers

Lab Standard

+	Possible Tedlar bag artifact.
A	TIC is a suspected aldol-condensation product
B	Analyte found in the associated method blank as well as in the sample.
BC	Reported results are not blank corrected.
BH	The back section of the tube yielded higher results than the front.
BT	Results indicated possible breakthrough; back section >=10% front section.
C	Result identification confirmed.
D	Compound identified in an analysis at a secondary dilution factor
D	Spike was diluted out
DE	Reported results are corrected for desorption efficiency.
E	Estimated value. Concentration above calibration range
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
H1	Sample analysis performed past holding time. See case narrative.
H2	Initial analysis within holding time. Reanalysis for the required dilution was past holding time.
H3	Sample was received and analyzed past holding time.
H4	Sample was extracted past required extraction holding time, but analyzed within analysis holding time. See case narrative.
I	Internal standard not within the specified limits. See case narrative.
J	Estimated Value. Concentration found below MRL.
K	A deflection in the QC ion may indicate interference with the quantitation of this ion. The concentration of this analyte should be considered as an estimate.
K	Analyte was detected above the method reporting limit prior to normalization.
K	The reference ion ratio was outside acceptance criteria, which may indicate a potential bias to this result.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
L1	Laboratory control sample recovery outside the specified limits; results may be biased high.
L2	Laboratory control sample recovery outside the specified limits; results may be biased low.
L3	Laboratory control sample recovery outside the specified limits.
M	Matrix interference; results may be biased high.
M	The duplicate injection precision not met.
M1	Matrix interference due to coelution with a non-target compound; results may be biased high.
N	Presumptive evidence of a compound for TICs that have been identified based on a mass spectral library search.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.

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Data Qualifiers

Lab Standard

O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
P	Indicates chlorodiphenyl ether interference present at the retention time of the target compound.
P	Pesticide/Aroclor target analyte > 40% difference for detected concentrations between GC columns
Q	Indicates as estimated value because the P and P + 2 theoretical abundance ratio does not meet method criteria.
R	Duplicate Precision not met.
R1	Duplicate precision not within the specified limits; however, the results are below the MRL and considered estimated.
S	Surrogate recovery not within specified limits.
S	The reported value was determined by the Method of Standard Additions (MSA).
T	Analyte is a tentatively identified compound, result is estimated.
U	Compound was analyzed for, but was not detected (ND).
V1	The continuing calibration verification standard was outside (biased high) the specified limits for this compound.
V2	The continuing calibration verification standard was outside (biased low) the specified limits for this compound.
W	Result quantified, but the corresponding peak was detected outside the generated retention time window.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
X	See case narrative.
Y	Recovery outside limits
Y	The chromatogram resembles a petroleum product but does not match the calibration standard.
Z	The chromatogram does not resemble a petroleum product.
i	The MRL/MDL has been elevated due to a matrix interference.

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ALS Laboratory Group

Acronyms

Cal	Calibration
Conc	CONCentration
Dioxin(s)	Polychlorinated dibenzo-p-dioxin(s)
EDL	Estimated Detection Limit
EMPC	Estimated Maximum Possible Concentration
Flags	Data qualifiers
Furan(s)	Polychlorinated dibenzofuran(s)
g	Grams
ICAL	Initial CALibration
ID	IDentifier
Ions	Masses monitored for the analyte during data acquisition
L	Liter (s)
LCS	Laboratory Control Sample
DLCS	Duplicate Laboratory Control Sample
MB	Method Blank
MCL	Method Calibration Limit
MDL	Method Detection Limit
mL	Milliliters
MS	Matrix Spiked sample
DMS	Duplicate Matrix Spiked sample
NO	Number of peaks meeting all identification criteria
PCDD(s)	Polychlorinated dibenzo-p-dioxin(s)
PCDF(s)	Polychlorinated dibenzofuran(s)
ppb	Parts per billion
ppm	Parts per million
ppq	Parts per quadrillion
ppt	Parts per trillion
QA	Quality Assurance
QC	Quality Control
Ratio	Ratio of areas from monitored ions for an analyte
% Rec.	Percent recovery
RPD	Relative Percent Difference
RRF	Relative Response Factor
RT	Retention Time
SDG	Sample Delivery Group
S/N	Signal-to-noise ratio
TEF	Toxicity Equivalence Factor
TEQ	Toxicity Equivalence Quotient

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ALS Environmental

State Certifications, Accreditations, and Licenses

Agency	Number	Expire Date
American Association for Laboratory Accreditation	2897.01 2020	11/30/2021
Arizona Department of Health Services	AZ0793-2020	5/27/2021
Arkansas Department of Environmental Quality	20-030-0	3/26/2021
California Department of Health Services	2919-2020	4/30/2021
Department of Defense	A2LA 2897.01	11/30/2021
Florida Department of Health	E87611-2020	6/30/2021
Hawaii Department of Health	2020	4/30/2021
Illinois Environmental Protection Agency	2000322020-4	5/9/2021
Kansas Department of Health and Environment	E-10352-2020	7/31/2021
Louisiana Department of Environmental Quality	03087-2020	6/30/2021
Maine Department of Health and Human Services	2020016	6/5/2022
Maryland Department of the Environment	343-2020	6/30/2021
Michigan Depratment of Environmental Quality	9971-2020	4/30/2021
Nebraska Department of Health and Human Services	NE-OS-25-13 (2020)	4/30/2021
Nevada Department of Concervation and Natural Resources	TX026932021-1	7/31/2021
New Hampshire Environmental Laboratory Accreditation Program	209420	4/24/2021
New Jersey Department of Environmental Protection	TX008	6/30/2021
New York Department of Health	11707	3/31/2021
Oklahoma Department of Environmental Quality	2020-123	8/31/2021
Pennsylvania Department of Environmental Protection	014	6/30/2021
Tennessee Department of Environment and Concervation	04016-2020	4/30/2021
Texas Commision on Environmental Quality	T104704231-20-26	4/30/2021
United States Department of Agriculture	P330-19-00299	10/10/2022

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Chain of Custody

ALS Environmental - Houston HRMS
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Phone (713)266-1599 Fax (713)266-0130
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Subcontract Chain of Custody

SAMPLING STATE: **Texas** **COC ID:** **15642**

SUBCONTRACT TO:

ALS Environmental
10450 Stancliff RoadSuite 210
Houston, TX 77084

Phone: +1 281 530 5656

CUSTOMER INFORMATION:

Company:	ALS Houston
Contact:	RJ Modashia
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Email:	RJ.Modashia@alsglobal.com
Alternate Contact:	
Email:	

INVOICE INFORMATION:

Company:	ALS Houston
Contact:	Accounts Payable
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Reference:	HS21020466
TSR:	Sonia West

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS21020466-01**	**HBW7_020821**	**Surface Water**	**08 Feb 2021 09:10**
	Provide Level II and Level IV reports in separate pdf			24 Feb 2021
2.	**HS21020466-02**	**HBW10_020821**	**Surface Water**	**08 Feb 2021 09:25**
	Provide Level II and Level IV reports in separate pdf			24 Feb 2021
3.	**HS21020466-03**	**HBW1_020821**	**Surface Water**	**08 Feb 2021 09:38**
	Provide Level II and Level IV reports in separate pdf			24 Feb 2021
4.	**HS21020466-04**	**HBW1_020821_a**	**Surface Water**	**08 Feb 2021 09:38**
	Provide Level II and Level IV reports in separate pdf			24 Feb 2021
5.	**HS21020466-05**	**GPW1_020821**	**Surface Water**	**08 Feb 2021 09:27**
	Provide Level II and Level IV reports in separate pdf			24 Feb 2021
6.	**HS21020466-06**	**GPW3_020821**	**Surface Water**	**08 Feb 2021 10:13**
	Provide Level II and Level IV reports in separate pdf			24 Feb 2021

Comments: Please analyze for the analysis listed above.
Send report to the emails shown above.

QC Level: DOD IV (DoD Data Package)

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Subcontract Chain of Custody

SAMPLING STATE: **Texas**

COC ID: **15642**

Relinquished By: _____ Date/Time: _____

Received By: _____ Date/Time: 2/10/21 1307

Cooler ID(s): _____ Temperature(s): _____

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ALS Environmental

Cooler Receipt Form

Project Chemist CK

Client/Project ALS-H

Thermometer ID IR31

Date/Time Received: 2/10/21 Initials: CK Date/Time Logged in: 2/10/21 Initials CK

1. Method of delivery: ○ US Mail ○ Fed Ex ○ UPS ○ DHL ◐ Courier (ALS) ○ Client

2. Samples received in: ◐ Cooler ○ Box ○ Envelope ○ Other

3. Were custody seals on coolers? ○ Yes ◐ No
   Were they intact? ○ Yes ○ No ◐ N/A
   Were they signed and dated? ○ Yes ○ No ◐ N/A
   If yes, how many and where?

4. Packing Material: ○ Inserts ◐ Baggies ○ Bubble Wrap ○ Gel Packs ◐ Wet Ice ○ Sleeves ○ Other

5. Foreign or Regulated Soil? ○ Yes ○ No Location of Sampling:

Cooler Tracking Number	COC ID	Date Opened	Time Opened	Opened By	Temp. °C	Temp Blank?
NA		2/10/21	1503	CK	4.1	☒
						☐
						☐
						☐

6. Were custody papers properly filled out (ink, signed, dated, etc)? ◐ Yes ○ No
7. Did all bottles arrive in good condition (not broken, no signs of leakage)? ◐ Yes ○ No
8. Were all sample labels complete (i.e., sample ID, analysis, preservation, etc)? ◐ Yes ○ No
9. Were appropriate bottles/containers and volumes received for the requested tests? ◐ Yes ○ No
10. Did sample labels and tags agree with custody documents? ◐ Yes ○ No

Notes, Discrepancies, & Resolutions:

Service request Label:

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SAMPLE ACCEPTANCE POLICY

This policy outlines the criteria samples must meet to be accepted by ALS Environmental – Houston HRMS.

Cooler Custody Seals (desirable, mandatory if specified in SAP):

- ✓ Intact on outside of cooler, signed and dated

Chain-of-Custody (COC) documentation (mandatory):

The following is required on each COC:

- ✓ Sample ID, the location, date and time of collection, collector's name, preservation type, sample type, and any other special remarks concerning the sampleThe COC must be completed in ink.
- ✓ Signature and date of relinquishing party.

In the absence of a COC at sample receipt, the COC will be requested from the client.

Sample Integrity (mandatory):

Samples are inspected upon arrival to ensure that sample integrity was not compromised during transfer to the laboratory.

- ✓ Sample containers must arrive in good condition (not broken or leaking).
- ✓ Samples must be labeled appropriately, including Sample IDs, and requested test using durable labels and indelible ink.
- ✓ The correct type of sample bottle must be used for the method requested.
- ✓ An appropriate sample volume, or weight, must be received.
- ✓ Sample IDs and number of containers must reconcile with the COC.
- ✓ Samples must be received within the method defined holding time.

Temperature Requirement (varies by sample matrix):

- ✓ Aqueous and Non-aqueous samples must be shipped and stored cold, at 0 to 6ºC.
- ✓ Tissue samples must be shipped and stored frozen, at -20 to -10ºC.
- ✓ Air samples are shipped and stored cold, at 0 to 6ºC
- ✓ The sample temperature must be recorded on the COC

All cooler inspections are documented on the Cooler Receipt Form (CRF). A separate CRF is completed for each service request. Any samples not meeting the above criteria are noted on the CRF and the Project Manager notified. The Project Manager must resolve any sample integrity issues with the client prior to proceeding with the analysis. Such resolutions are documented in writing and filed with the project folder. Data associated with samples received outside of this acceptance policy will be qualified on the case narrative of the final report

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Preparation Information Benchsheets

ALS Environmental - Houston HRMS
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Preparation Information Benchsheet

Prep Run#: 374618 **Prep WorkFlow:** GenExt28Day **Status:** Prepped
Team: Semivoa GCMS/GRIVERA **Prep Method:** Method **Prep Date/Time:** 2/23/21 16:03

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E2100166-001	LH18/24-SP650_020921_BIX	.01	6850/ClO4 DOD			Water	10mL	
2	E2100167-001	HBW7_020821	.01	6850/ClO4 DOD			Water	10mL	
3	E2100167-002	HBW10_020821	.01	6850/ClO4 DOD			Water	10mL	
4	E2100167-003	HBW1_020821	.01	6850/ClO4 DOD			Water	10mL	
5	E2100167-004	HBW1_020821_a	.01	6850/ClO4 DOD			Water	10mL	
6	E2100167-005	GPW1_020821	.01	6850/ClO4 DOD			Water	10mL	
7	E2100167-006	GPW3_020821	.01	6850/ClO4 DOD			Water	10mL	
8	EQ2100084-01	MB		6850/ClO4 DOD			Liquid	10mL	
9	EQ2100084-02	LCS		6850/ClO4 DOD			Liquid	10mL	
10	EQ2100084-03	DLCS		6850/ClO4 DOD			Liquid	10mL	

Spiking Solutions

Name: Perchlorate Intermediate Stock1 Inventory ID 214035 Logbook Ref: Perchlorate Expires On: 05/23/2021

EQ2100084-02 1.00µL EQ2100084-03 1.00µL

Name: Perchlorate Internal Standard 1ug/mL Inventory ID 214820 Logbook Ref: Perchlorate Internal Standard Expires On: 07/03/2021

E2100166-001 100.00µL E2100167-001 100.00µL E2100167-002 100.00µL E2100167-003 100.00µL E2100167-004 100.00µL E2100167-005 100.00µL
E2100167-006 100.00µL EQ2100084-01 100.00µL EQ2100084-02 100.00µL EQ2100084-03 100.00µL

Preparation Steps

Step: Preparation
Started: 2/23/21 16:03
Finished: 2/23/21 16:30
By: GRIVERA
Comments

Comments: _____

Reviewed By: GR Date: 2/23/21

Chain of Custody

Relinquished By: _____ Date: _____ Extracts Examined

Received By: _____ Date: _____ Yes No

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Analytical Results

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Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100167
Project:	HS21020466	**Date Collected:**	2/ 8/21 0910
Sample Matrix:	Water	**Date Received:**	2/10/21
Sample Name:	HBW7_020821	**Units:**	µg/L
Lab Code:	E2100167-001	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	ND	U	0.100	0.0500	0.0250	1	2/23/21	2/23/21 20:41	374618	713947	

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ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100167
Project:	HS21020466	**Date Collected:**	2/ 8/21 0925
Sample Matrix:	Water	**Date Received:**	2/10/21
Sample Name:	HBW10_020821	**Units:**	µg/L
Lab Code:	E2100167-002	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	ND	U	0.100	0.0500	0.0250	1	2/23/21	2/23/21 20:49	374618	713947	

Form 1A
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ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100167
Project:	HS21020466	**Date Collected:**	2/ 8/21 0938
Sample Matrix:	Water	**Date Received:**	2/10/21
Sample Name:	HBW1_020821	**Units:**	µg/L
Lab Code:	E2100167-003	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	ND	U	0.100	0.0500	0.0250	1	2/23/21	2/23/21 20:57	374618	713947	

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ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100167
Project:	HS21020466	**Date Collected:**	2/ 8/21 0938
Sample Matrix:	Water	**Date Received:**	2/10/21
Sample Name:	HBW1_020821_a	**Units:**	µg/L
Lab Code:	E2100167-004	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	ND	U	0.100	0.0500	0.0250	1	2/23/21	2/23/21 21:05	374618	713947	

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Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100167
Project:	HS21020466	**Date Collected:**	2/ 8/21 0927
Sample Matrix:	Water	**Date Received:**	2/10/21
Sample Name:	GPW1_020821	**Units:**	µg/L
Lab Code:	E2100167-005	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	ND	U	0.100	0.0500	0.0250	1	2/23/21	2/23/21 21:13	374618	713947	

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Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100167
Project:	HS21020466	**Date Collected:**	2/ 8/21 1013
Sample Matrix:	Water	**Date Received:**	2/10/21
Sample Name:	GPW3_020821	**Units:**	µg/L
Lab Code:	E2100167-006	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	ND	U	0.100	0.0500	0.0250	1	2/23/21	2/23/21 21:21	374618	713947	

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Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100167
Project:	HS21020466	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	EQ2100084-01	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	ND	U	0.100	0.0500	0.0250	1	2/23/21	2/23/21 20:10	374618	713947	

Accuracy & Precision

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ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2100167
Project:	HS21020466	**Date Analyzed:**	2/23/21
Sample Matrix:	Water		

Lab Control Sample Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Units:**	µg/L
Prep Method:	Method	**Basis:**	NA
		Extraction Lot:	374618

	Lab Control Sample EQ2100084-02			Duplicate Lab Control Sample EQ2100084-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	0.0921	0.100	92	0.110	0.100	110	84 - 119	18 *	15

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

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Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100167
Project:	HS21020466	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2100084-02	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**0.0921**	J	0.100	0.0500	0.0250	1	2/23/21	2/23/21 20:18	374618	713947	

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Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100167
Project:	HS21020466	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2100084-03	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**0.110**		0.100	0.0500	0.0250	1	2/23/21	2/23/21 20:26	374618	713947	

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Initial Calibration

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20210223

ALS Environmental

ICAL Date: 2/23/2021
Cal. Std. xp: 5/20/2021
ICAL ID: **EC2100008**

1st Review: Grivera
2nd Review: Kneir

Injection Log
LCMS01 -Shimadzu 8050

Mobile Phases **A:** 0.75% Formic Acid/Water 3100807-09 **B:** MeOH 3100802-01

			File Name	Acquisition Method	Dilution	R	Comments	Date/Time
1	PERCHLORATE1		20210223_013	Perchlorate6850b.lcm	1x	☒	3100808-05	2/23/2021 18:19
2	PERCHLORATE2		20210223_014	Perchlorate6850b.lcm	1x	☒	3100808-06	2/23/2021 18:27
3	PERCHLORATE3		20210223_015	Perchlorate6850b.lcm	1x	☒	3100808-07	2/23/2021 18:35
4	PERCHLORATE4		20210223_016	Perchlorate6850b.lcm	1x	☒	3100808-08	2/23/2021 18:43
5	PERCHLORATE5		20210223_017	Perchlorate6850b.lcm	1x	☒	3100808-09	2/23/2021 18:51
6	PERCHLORATE6		20210223_018	Perchlorate6850b.lcm	1x	☒	3100809-01	2/23/2021 18:59
7	PERCHLORATE7		20210223_019	Perchlorate6850b.lcm	1x	☒	3100809-02	2/23/2021 19:06
8	PERCHLORATE8		20210223_020	Perchlorate6850b.lcm	1x	☒	3100809-03	2/23/2021 19:14
9	PERCHLORATE9		20210223_021	Perchlorate6850b.lcm	1x	☒	3100809-04	2/23/2021 19:22
10	PERCHLORATE10		20210223_022	Perchlorate6850b.lcm	1x	☒	3100809-05	2/23/2021 19:30
11	PERCHLORATEICV		20210223_023	Perchlorate6850b.lcm	1x	☒	3100809-06	2/23/2021 19:38
12	LODV		20210223_024	Perchlorate6850b.lcm	1x	☒		2/23/2021 19:46
13	ICS		20210223_025	Perchlorate6850b.lcm	1x	☒		2/23/2021 19:54
14	PERCHLORATE7		20210223_026	Perchlorate6850b.lcm	1x	☒	3100809-02	2/23/2021 20:02
15	EQ2100084-01		20210223_027	Perchlorate6850b.lcm	1x	☒		2/23/2021 20:10
16	EQ2100084-02		20210223_028	Perchlorate6850b.lcm	1x	☒		2/23/2021 20:18
17	EQ2100084-03		20210223_029	Perchlorate6850b.lcm	1x	☒		2/23/2021 20:26
18	E2100166-001		20210223_030	Perchlorate6850b.lcm	1x	☒		2/23/2021 20:34
19	E2100167-001		20210223_031	Perchlorate6850b.lcm	1x	☒		2/23/2021 20:41
20	E2100167-002		20210223_032	Perchlorate6850b.lcm	1x	☒		2/23/2021 20:49
21	E2100167-003		20210223_033	Perchlorate6850b.lcm	1x	☒		2/23/2021 20:57
22	E2100167-004		20210223_034	Perchlorate6850b.lcm	1x	☒		2/23/2021 21:05
23	E2100167-005		20210223_035	Perchlorate6850b.lcm	1x	☒		2/23/2021 21:13
24	E2100167-006		20210223_036	Perchlorate6850b.lcm	1x	☒		2/23/2021 21:21
25	PERCHLORATE7		20210223_037	Perchlorate6850b.lcm	1x	☒	3100809-02	2/23/2021 21:29
26	EQ2100085-01		20210223_038	Perchlorate6850b.lcm	1x	☒		2/23/2021 21:37
27	EQ2100085-02		20210223_039	Perchlorate6850b.lcm	1x	☒		2/23/2021 21:45
28	EQ2100085-03		20210223_040	Perchlorate6850b.lcm	1x	☒		2/23/2021 21:52
29	E2100174-001		20210223_041	Perchlorate6850b.lcm	1x	☒		2/23/2021 22:00
30	E2100174-002		20210223_042	Perchlorate6850b.lcm	1x	☒		2/23/2021 22:08
31	PERCHLORATE7		20210223_043	Perchlorate6850b.lcm	1x	☒	3100809-02	2/23/2021 22:16
32								
33								
34								
35								
36								
37								
38								
39								

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Initial Calibration - Detailed Report

Calibration ID: EC2100008 **Instrument ID:** E-LCMS-01
Column Name: 1

#	Lab Code	Sample Name	File Location	Aquisition Date
01	EC2100008-01	PERCHLORATE1	20210223_013	02/23/2021 18:19
02	EC2100008-02	PERCHLORATE2	20210223_014	02/23/2021 18:27
03	EC2100008-03	PERCHLORATE3	20210223_015	02/23/2021 18:35
04	EC2100008-04	PERCHLORATE4	20210223_016	02/23/2021 18:43
05	EC2100008-05	PERCHLORATE5	20210223_017	02/23/2021 18:51
06	EC2100008-06	PERCHLORATE6	20210223_018	02/23/2021 18:59
07	EC2100008-07	PERCHLORATE7	20210223_019	02/23/2021 19:06
08	EC2100008-08	PERCHLORATE8	20210223_020	02/23/2021 19:14
10	EC2100008-10	PERCHLORATE9	20210223_021	02/23/2021 19:22
09	EC2100008-09	PERCHLORATE10	20210223_022	02/23/2021 19:30

Analyte **Curve Fit** **Weighting**

Perchlorate **Average RF** **RSD = 8.314** **Average RF = 0.1429**

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.1000	0.1701	02	0.5000	0.1504	03	0.7000	0.1461	04	1.0000	0.1378
05	2.0000	0.1481	06	5.0000	0.1414	07	10.0000	0.1388	08	20.0000	0.1335
09	50.0000	0.1274	10	30.0000	0.135						

Analyte

Perchlorate

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.1000	0.119	19.1	02	0.5000	0.526	5.3	03	0.7000	0.716	2.2
04	1.0000	0.965	-3.5	05	2.0000	2.07	3.7	06	5.0000	4.95	-1.0
07	10.0000	9.72	-2.8	08	20.0000	18.7	-6.6	09	50.0000	44.6	-10.8
10	30.0000	28.4	-5.5								

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Initial Calibration Verification Summary Report

Calibration ID:	EC2100008	**Instrument ID:**	E-LCMS-01
Datafile ID:	20210223_023	**Column Name:**	1

Analyte	Lab Code	Type	Curve Fit	True Value	Calc Conc	Units	Result	Criteria
Perchlorate	EC2100008-11	T	Average RF	10	9.724	ng/mL	-2.8	<= 15

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ALS Group Houston

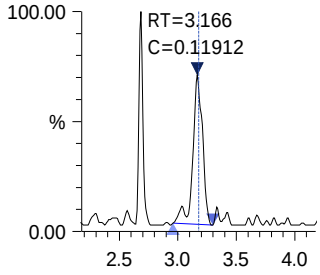
PERCHLORATE1

Date acquired: 2/23/2021 6:19:32 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210223\20210223_013.lcd
Vial: 22 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE1	2/23/2021 6:19:32 PM	962	0.11912	20210223_013	3.166	25.0000	1.0000	22
Sodium Perchlorate-18O4_IS	PERCHLORATE1	2/23/2021 6:19:32 PM	56548	1.00000	20210223_013	3.177	25.0000	1.0000	22

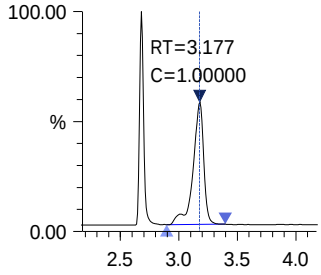
Perchlorate

Conc 0.11912
Area 962
Q 99.00>83.00 (-) 2.39e2



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 56548
ISTD 107.00>89.00 (-) 1.57e4



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ALS Group Houston

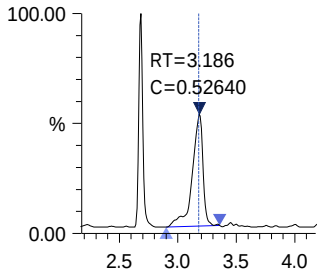
PERCHLORATE2

Date acquired: 2/23/2021 6:27:27 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210223\20210223_014.lcd
Vial: 23 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE2	2/23/2021 6:27:27 PM	4057	0.52640	20210223_014	3.186	25.0000	1.0000	23
Sodium Perchlorate-18O4_IS	PERCHLORATE2	2/23/2021 6:27:27 PM	53938	1.00000	20210223_014	3.180	25.0000	1.0000	23

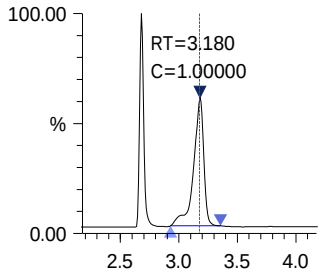
Perchlorate

Conc 0.52640
Area 4057
Q 99.00>83.00 (-) 1.24e3



Sodium Perchlorate-18O4 _IS

Conc 1.00000
Area 53938
ISTD 107.00>89.00 (-) 1.50e4



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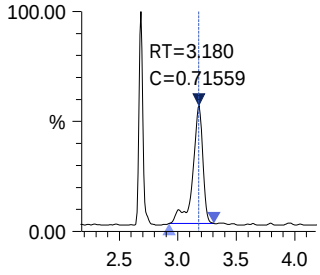
PERCHLORATE3

Date acquired: 2/23/2021 6:35:24 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210223\20210223_015.lcd
Vial: 24 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE3	2/23/2021 6:35:24 PM	5394	0.71559	20210223_015	3.180	25.0000	1.0000	24
Sodium Perchlorate-18O4_IS	PERCHLORATE3	2/23/2021 6:35:24 PM	52750	1.00000	20210223_015	3.180	25.0000	1.0000	24

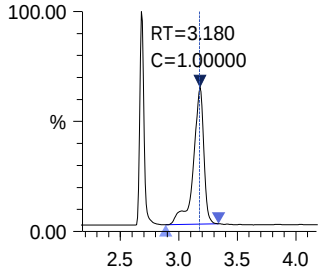
Perchlorate

Conc 0.71559
Area 5394
Q 99.00>83.00 (-) 1.65e3



Sodium Perchlorate-18O4 _IS

Conc 1.00000
Area 52750
ISTD 107.00>89.00 (-) 1.34e4



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PERCHLORATE4

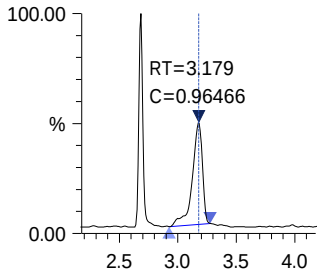
Date acquired: 2/23/2021 6:43:17 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210223\20210223_016.lcd
Vial: 25 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE4	2/23/2021 6:43:17 PM	7080	0.96466	20210223_016	3.179	25.0000	1.0000	25
Sodium Perchlorate-18O4_IS	PERCHLORATE4	2/23/2021 6:43:17 PM	51366	1.00000	20210223_016	3.179	25.0000	1.0000	25

Perchlorate

Conc 0.96466
Area 7080

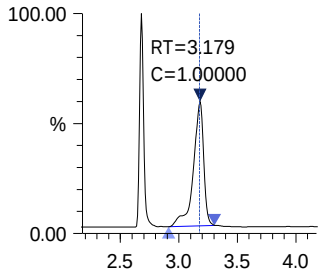
Q 99.00>83.00 (-) 2.50e3



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 51366

ISTD 107.00>89.00 (-) 1.45e4



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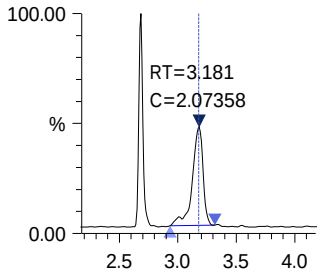
PERCHLORATE5

Date acquired: 2/23/2021 6:51:11 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210223\20210223_017.lcd
Vial: 26 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE5	2/23/2021 6:51:11 PM	13652	2.07358	20210223_017	3.181	25.0000	1.0000	26
Sodium Perchlorate-18O4_IS	PERCHLORATE5	2/23/2021 6:51:11 PM	46077	1.00000	20210223_017	3.181	25.0000	1.0000	26

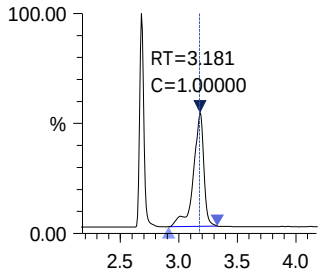
Perchlorate

Conc 2.07358
Area 13652
Q 99.00>83.00 (-) 4.69e3



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 46077
ISTD 107.00>89.00 (-) 1.42e4



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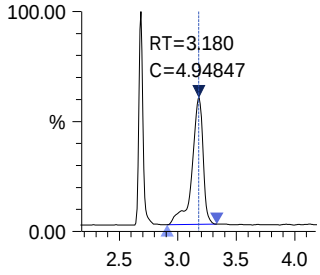
PERCHLORATE6

Date acquired: 2/23/2021 6:59:05 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210223\20210223_018.lcd
Vial: 27 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE6	2/23/2021 6:59:05 PM	33764	4.94847	20210223_018	3.180	25.0000	1.0000	27
Sodium Perchlorate-18O4_IS	PERCHLORATE6	2/23/2021 6:59:05 PM	47753	1.00000	20210223_018	3.179	25.0000	1.0000	27

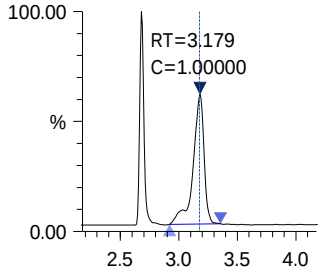
Perchlorate

Conc 4.94847
Area 33764
Q 99.00>83.00 (-) 8.73e3



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 47753
ISTD 107.00>89.00 (-) 1.21e4



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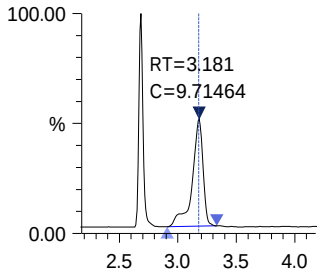
PERCHLORATE7

Date acquired: 2/23/2021 7:06:59 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210223\20210223_019.lcd
Vial: 21 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE7	2/23/2021 7:06:59 PM	45853	9.71464	20210223_019	3.181	25.0000	1.0000	21
Sodium Perchlorate-18O4_IS	PERCHLORATE7	2/23/2021 7:06:59 PM	33034	1.00000	20210223_019	3.180	25.0000	1.0000	21

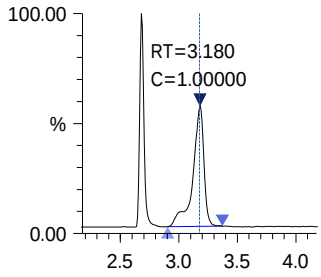
Perchlorate

Conc 9.71464
Area 45853
Q 99.00>83.00 (-) 1.43e4



Sodium Perchlorate-18O4 _IS

Conc 1.00000
Area 33034
ISTD 107.00>89.00 (-) 8.96e3



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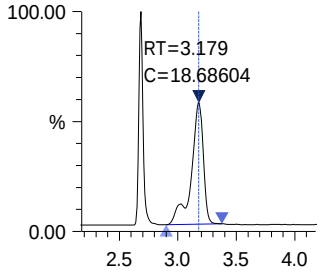
PERCHLORATE8

Date acquired: 2/23/2021 7:14:53 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210223\20210223_020.lcd
Vial: 28 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE8	2/23/2021 7:14:53 PM	109350	18.68604	20210223_020	3.179	25.0000	1.0000	28
Sodium Perchlorate-18O4_IS	PERCHLORATE8	2/23/2021 7:14:53 PM	40956	1.00000	20210223_020	3.182	25.0000	1.0000	28

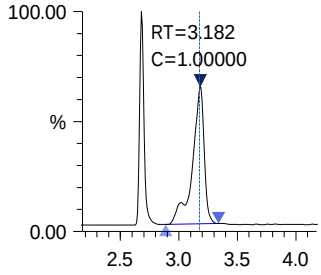
Perchlorate

Conc 18.68604
Area 109350
Q 99.00>83.00 (-) 2.71e4



Sodium Perchlorate-18O4 _IS

Conc 1.00000
Area 40956
ISTD 107.00>89.00 (-) 9.18e3



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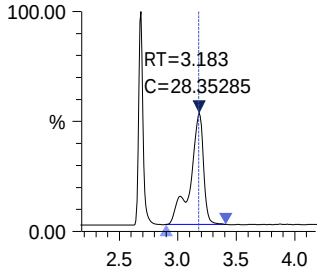
PERCHLORATE9

Date acquired: 2/23/2021 7:22:48 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210223\20210223_021.lcd
Vial: 29 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE9	2/23/2021 7:22:48 PM	146670	28.35285	20210223_021	3.183	25.0000	1.0000	29
Sodium Perchlorate-18O4_IS	PERCHLORATE9	2/23/2021 7:22:48 PM	36204	1.00000	20210223_021	3.179	25.0000	1.0000	29

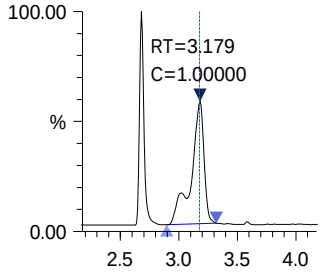
Perchlorate

Conc 28.35285
Area 146670
Q 99.00>83.00 (-) 3.66e4



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 36204
ISTD 107.00>89.00 (-) 8.34e3



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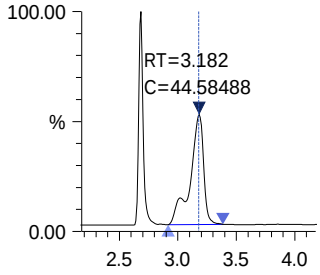
PERCHLORATE10

Date acquired: 2/23/2021 7:30:44 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210223\20210223_022.lcd
Vial: 30 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE10	2/23/2021 7:30:44 PM	215406	44.58488	20210223_022	3.182	25.0000	1.0000	30
Sodium Perchlorate-18O4_IS	PERCHLORATE10	2/23/2021 7:30:44 PM	33813	1.00000	20210223_022	3.179	25.0000	1.0000	30

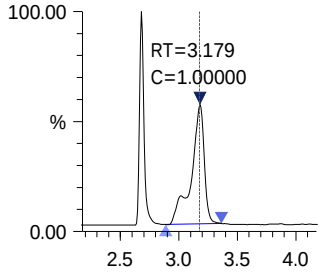
Perchlorate

Conc 44.58488
Area 215406
Q 99.00>83.00 (-) 5.30e4



Sodium Perchlorate-18O4 _IS

Conc 1.00000
Area 33813
ISTD 107.00>89.00 (-) 7.88e3



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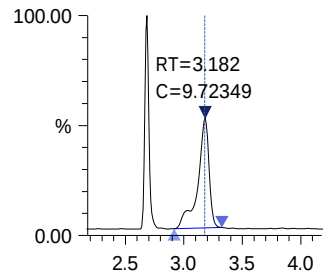
PERCHLORATEICV

Date acquired: 2/23/2021 7:38:39 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210223\20210223_023.lcd
Vial: 31 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATEICV	2/23/2021 7:38:39 PM	41696	9.72349	20210223_023	3.182	25.0000	1.0000	31
Sodium Perchlorate-18O4_IS	PERCHLORATEICV	2/23/2021 7:38:39 PM	30011	1.00000	20210223_023	3.179	25.0000	1.0000	31

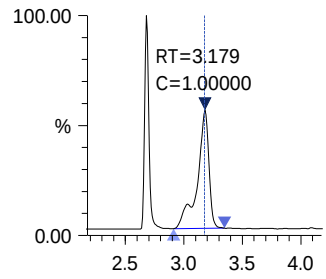
Perchlorate

Conc 9.72349
Area 41696



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 30011



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Chromatograms and Selected Ion Monitoring

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 320, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

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20210223

ALS Environmental

ICAL Date: 2/23/2021
Cal. Std. xp: 5/20/2021
ICAL ID: **EC2100008**

1st Review: Grivera
2nd Review: Kneir

Injection Log
LCMS01 -Shimadzu 8050

Mobile Phases **A:** 0.75% Formic Acid/Water 3100807-09 **B:** MeOH 3100802-01

			File Name	Acquisition Method	Dilution	R	Comments	Date/Time
1	PERCHLORATE1		20210223_013	Perchlorate6850b.lcm	1x	☒	3100808-05	2/23/2021 18:19
2	PERCHLORATE2		20210223_014	Perchlorate6850b.lcm	1x	☒	3100808-06	2/23/2021 18:27
3	PERCHLORATE3		20210223_015	Perchlorate6850b.lcm	1x	☒	3100808-07	2/23/2021 18:35
4	PERCHLORATE4		20210223_016	Perchlorate6850b.lcm	1x	☒	3100808-08	2/23/2021 18:43
5	PERCHLORATE5		20210223_017	Perchlorate6850b.lcm	1x	☒	3100808-09	2/23/2021 18:51
6	PERCHLORATE6		20210223_018	Perchlorate6850b.lcm	1x	☒	3100809-01	2/23/2021 18:59
7	PERCHLORATE7		20210223_019	Perchlorate6850b.lcm	1x	☒	3100809-02	2/23/2021 19:06
8	PERCHLORATE8		20210223_020	Perchlorate6850b.lcm	1x	☒	3100809-03	2/23/2021 19:14
9	PERCHLORATE9		20210223_021	Perchlorate6850b.lcm	1x	☒	3100809-04	2/23/2021 19:22
10	PERCHLORATE10		20210223_022	Perchlorate6850b.lcm	1x	☒	3100809-05	2/23/2021 19:30
11	PERCHLORATEICV		20210223_023	Perchlorate6850b.lcm	1x	☒	3100809-06	2/23/2021 19:38
12	LODV		20210223_024	Perchlorate6850b.lcm	1x	☒		2/23/2021 19:46
13	ICS		20210223_025	Perchlorate6850b.lcm	1x	☒		2/23/2021 19:54
14	PERCHLORATE7		20210223_026	Perchlorate6850b.lcm	1x	☒	3100809-02	2/23/2021 20:02
15	EQ2100084-01		20210223_027	Perchlorate6850b.lcm	1x	☒		2/23/2021 20:10
16	EQ2100084-02		20210223_028	Perchlorate6850b.lcm	1x	☒		2/23/2021 20:18
17	EQ2100084-03		20210223_029	Perchlorate6850b.lcm	1x	☒		2/23/2021 20:26
18	E2100166-001		20210223_030	Perchlorate6850b.lcm	1x	☒		2/23/2021 20:34
19	E2100167-001		20210223_031	Perchlorate6850b.lcm	1x	☒		2/23/2021 20:41
20	E2100167-002		20210223_032	Perchlorate6850b.lcm	1x	☒		2/23/2021 20:49
21	E2100167-003		20210223_033	Perchlorate6850b.lcm	1x	☒		2/23/2021 20:57
22	E2100167-004		20210223_034	Perchlorate6850b.lcm	1x	☒		2/23/2021 21:05
23	E2100167-005		20210223_035	Perchlorate6850b.lcm	1x	☒		2/23/2021 21:13
24	E2100167-006		20210223_036	Perchlorate6850b.lcm	1x	☒		2/23/2021 21:21
25	PERCHLORATE7		20210223_037	Perchlorate6850b.lcm	1x	☒	3100809-02	2/23/2021 21:29
26	EQ2100085-01		20210223_038	Perchlorate6850b.lcm	1x	☒		2/23/2021 21:37
27	EQ2100085-02		20210223_039	Perchlorate6850b.lcm	1x	☒		2/23/2021 21:45
28	EQ2100085-03		20210223_040	Perchlorate6850b.lcm	1x	☒		2/23/2021 21:52
29	E2100174-001		20210223_041	Perchlorate6850b.lcm	1x	☒		2/23/2021 22:00
30	E2100174-002		20210223_042	Perchlorate6850b.lcm	1x	☒		2/23/2021 22:08
31	PERCHLORATE7		20210223_043	Perchlorate6850b.lcm	1x	☒	3100809-02	2/23/2021 22:16
32								
33								
34								
35								
36								
37								
38								
39								

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ALS Environmental

ICAL Date: 2/23/2021
Cal. Std. xp: 5/20/2021
ICAL ID: **EC2100008**

1st Review: Grivera
2nd Review: Kneir

Injection Log
LCMS01 -Shimadzu 8050

Mobile Phases **A:** 0.75% Formic Acid/Water 3100807-09 **B:** MeOH 3100802-01

			File Name	Acquisition Method	Dilution	R	Comments	Date/Time
1	null		20210224_001	Perchlorate6850b.lcm	1x	☒		2/24/2021 9:22
2	null		20210224_002	Perchlorate6850b.lcm	1x	☒		2/24/2021 9:27
3	IB		20210224_003	Perchlorate6850b.lcm	1x	☒		2/24/2021 9:33
4	IB		20210224_004	Perchlorate6850b.lcm	1x	☒		2/24/2021 9:41
5	ICS		20210224_005	Perchlorate6850b.lcm	1x	☒		2/24/2021 9:48
6	LODV		20210224_006	Perchlorate6850b.lcm	1x	☒		2/24/2021 9:56
7	PERCHLORATE7		20210224_007	Perchlorate6850b.lcm	1x	☒	3100809-02	2/24/2021 10:04
8	E2100174-001x10		20210224_009	Perchlorate6850b.lcm	10x	☒		2/24/2021 10:21
9	E2100166-001x10		20210224_010	Perchlorate6850b.lcm	10x	☒		2/24/2021 10:29
10	PERCHLORATE7		20210224_011	Perchlorate6850b.lcm	1x	☒	3100809-02	2/24/2021 10:37
11								
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22								
23								
24								

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2100167
Project:	HS21020466	**Date Analyzed:**	2/23/21

Continuing Calibration Verification Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Calibration Date:**	2/23/21
File ID:	I:\LCMS01\DATA\20210223\20210223_026	**Calibration ID:**	EC2100008
		Analysis Lot:	713947
		Units:	ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	9.85	0.1429	0.1408	-1.5	NA	± 15 %	Average RF

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ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2100167
Project:	HS21020466	**Date Analyzed:**	2/23/21

Continuing Calibration Verification Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Calibration Date:**	2/23/21
File ID:	I:\LCMS01\DATA\20210223\20210223_037	**Calibration ID:**	EC2100008
		Analysis Lot:	713947
		Units:	ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	10.1	0.1429	0.1436	0.5	NA	± 15 %	Average RF

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ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2100167
Project:	HS21020466	**Date Analyzed:**	2/23/21 20:02

Internal Standard Area and RT Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

File ID:	I:\LCMS01\DATA\20210223\20210223_026	**Lab Code:**	EQ2100086-01
Instrument ID:	E-LCMS-01	**Analysis Lot:**	713947
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	45,244	3.18
	Upper Limit ==>	67,866	5.18
	Lower Limit ==>	22,622	1.18
Associated Analyses			
Continuing Calibration Verification	EQ2100086-01	28,042	3.18
Method Blank	EQ2100084-01	40,794	3.18
Lab Control Sample	EQ2100084-02	44,758	3.18
Duplicate Lab Control Sample	EQ2100084-03	42,878	3.18
HBW7_020821	E2100167-001	37,073	3.18
HBW10_020821	E2100167-002	36,742	3.18
HBW1_020821	E2100167-003	36,624	3.18
HBW1_020821_a	E2100167-004	33,862	3.18
GPW1_020821	E2100167-005	36,261	3.18
GPW3_020821	E2100167-006	33,792	3.18

Results flagged with an asterisk (*) indicate values outside control criteria.

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ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2100167
Project:	HS21020466	**Date Analyzed:**	2/23/21 21:29

Internal Standard Area and RT Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

File ID:	I:\LCMS01\DATA\20210223\20210223_037	**Lab Code:**	EQ2100086-02
Instrument ID:	E-LCMS-01	**Analysis Lot:**	713947
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	45,244	3.18
	Upper Limit ==>	67,866	5.18
	Lower Limit ==>	22,622	1.18
Associated Analyses			
Continuing Calibration Verification	EQ2100086-02	26,284	3.18

Results flagged with an asterisk (*) indicate values outside control criteria.

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ALS Group Houston

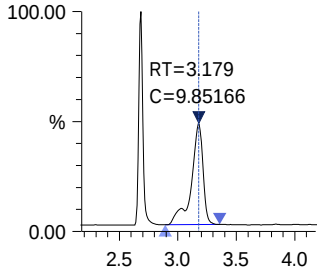
PERCHLORATE7

Date acquired: 2/23/2021 8:02:25 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210223\20210223_026.lcd
Vial: 31 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE7	2/23/2021 8:02:25 PM	39473	9.85166	20210223_026	3.179	25.0000	1.0000	31
Sodium Perchlorate-18O4_IS	PERCHLORATE7	2/23/2021 8:02:25 PM	28042	1.00000	20210223_026	3.181	25.0000	1.0000	31

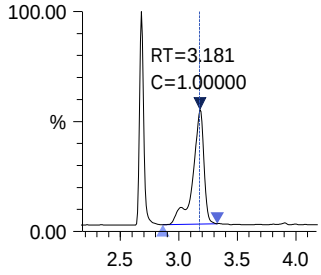
Perchlorate

Conc 9.85166
Area 39473
Q 99.00>83.00 (-) 1.22e4



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 28042
ISTD 107.00>89.00 (-) 7.98e3



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ALS Group Houston

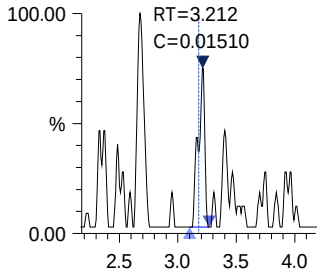
EQ2100084-01

Date acquired: 2/23/2021 8:10:19 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210223\20210223_027.lcd
Vial: 18 | Inj. Volume: 25.0000uL | Tray: 5

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	EQ2100084-01	2/23/2021 8:10:19 PM	88	0.01510	20210223_027	3.212	25.0000	1.0000	18
Sodium Perchlorate-18O4_IS	EQ2100084-01	2/23/2021 8:10:19 PM	40794	1.00000	20210223_027	3.178	25.0000	1.0000	18

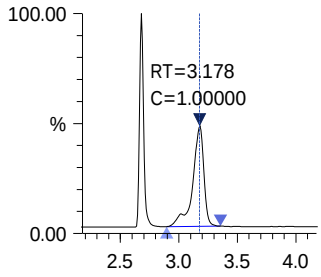
Perchlorate

Conc 0.01510
Area 88
Q 99.00>83.00 (-) 3.10e1



Sodium Perchlorate-18O4 _IS

Conc 1.00000
Area 40794
ISTD 107.00>89.00 (-) 1.32e4



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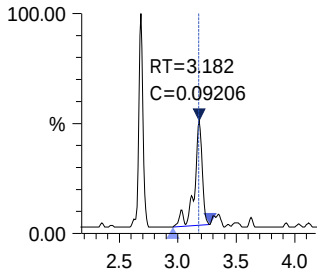
EQ2100084-02

Date acquired: 2/23/2021 8:18:13 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210223\20210223_028.lcd
Vial: 19 | Inj. Volume: 25.0000uL | Tray: 5

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	EQ2100084-02	2/23/2021 8:18:13 PM	589	0.09206	20210223_028	3.182	25.0000	1.0000	19
Sodium Perchlorate-18O4_IS	EQ2100084-02	2/23/2021 8:18:13 PM	44758	1.00000	20210223_028	3.178	25.0000	1.0000	19

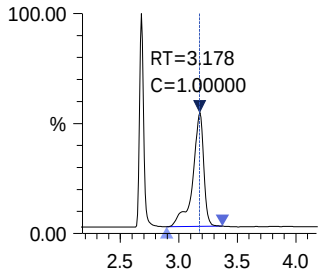
Perchlorate

Conc 0.09206
Area 589
Q 99.00>83.00 (-) 2.65e2



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 44758
ISTD 107.00>89.00 (-) 1.30e4



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ALS Group Houston

EQ2100084-03

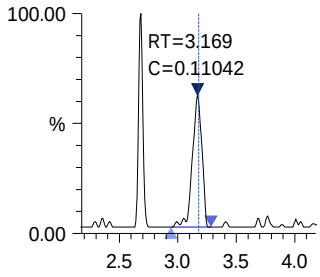
Date acquired: 2/23/2021 8:26:05 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210223\20210223_029.lcd
Vial: 20 | Inj. Volume: 25.0000uL | Tray: 5

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	EQ2100084-03	2/23/2021 8:26:05 PM	676	0.11042	20210223_029	3.169	25.0000	1.0000	20
Sodium Perchlorate-18O4_IS	EQ2100084-03	2/23/2021 8:26:05 PM	42878	1.00000	20210223_029	3.176	25.0000	1.0000	20

Perchlorate

Conc 0.11042
Area 676

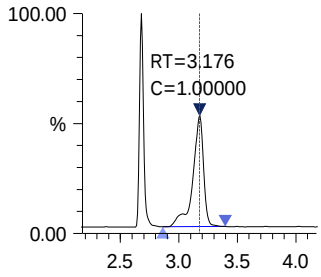
Q 99.00>83.00 (-) 1.95e2



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 42878

ISTD 107.00>89.00 (-) 1.31e4



RIGHT SOLUTIONS | RIGHT PARTNER

ALS Group Houston

PERCHLORATE7

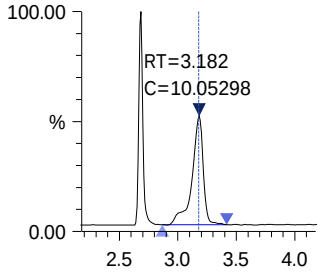
Date acquired: 2/23/2021 9:29:17 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210223\20210223_037.lcd
Vial: 31 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE7	2/23/2021 9:29:17 PM	37754	10.05298	20210223_037	3.182	25.0000	1.0000	31
Sodium Perchlorate-18O4_IS	PERCHLORATE7	2/23/2021 9:29:17 PM	26284	1.00000	20210223_037	3.177	25.0000	1.0000	31

Perchlorate

Conc 10.05298
Area 37754

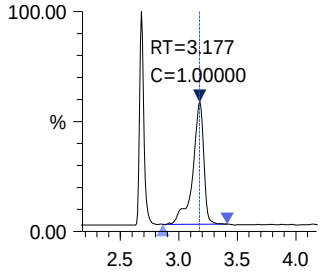
Q 99.00>83.00 (-) 1.12e4



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 26284

ISTD 107.00>89.00 (-) 7.08e3



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10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887

May 17, 2021

Marcia Olive
Bhate Environmental Associates, Inc.
445 Union Blvd Ste 129
Lakewood, CO 80228

Work Order: **HS21041459**

Laboratory Results for: **LHAAP /Quarterly Surface Samples**

Dear Marcia Olive,

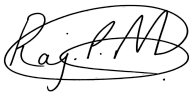
ALS Environmental received 6 sample(s) on Apr 28, 2021 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,



Generated By: JUMOKE.LAWAL
RJ Modashia
Project Manager

ALS Houston, US Date: 17-May-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP /Quarterly Surface Samples
Work Order: HS21041459

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS21041459-01	HBW7_042721	Surface Water		27-Apr-2021 08:45	28-Apr-2021 10:10	☐
HS21041459-02	HBW10_042721	Surface Water		27-Apr-2021 09:00	28-Apr-2021 10:10	☐
HS21041459-03	HBW10_042721_a	Surface Water		27-Apr-2021 09:00	28-Apr-2021 10:10	☐
HS21041459-04	HBW1_042721	Surface Water		27-Apr-2021 09:12	28-Apr-2021 10:10	☐
HS21041459-05	GPW1_042721	Surface Water		27-Apr-2021 09:25	28-Apr-2021 10:10	☐
HS21041459-06	GPW3_042721	Surface Water		27-Apr-2021 09:35	28-Apr-2021 10:10	☐

ALS Houston, US Date: 17-May-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP /Quarterly Surface Samples
Work Order: HS21041459

CASE NARRATIVE

Work Order Comments

- The analysis for Perchlorate was subcontracted to ALS Houston High-Res Lab. Final report attached..

ALS Houston, US Date: 17-May-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP /Quarterly Surface Samples
Sample ID: HBW7_042721
Collection Date: 27-Apr-2021 08:45

ANALYTICAL REPORT
WorkOrder:HS21041459
Lab ID:HS21041459-01
Matrix:Surface Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	17-May-2021 17:08

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 17-May-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP /Quarterly Surface Samples
Sample ID: HBW10_042721
Collection Date: 27-Apr-2021 09:00

ANALYTICAL REPORT
WorkOrder:HS21041459
Lab ID:HS21041459-02
Matrix:Surface Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	17-May-2021 17:08

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 17-May-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP /Quarterly Surface Samples
Sample ID: HBW10_042721_a
Collection Date: 27-Apr-2021 09:00

ANALYTICAL REPORT
WorkOrder:HS21041459
Lab ID:HS21041459-03
Matrix:Surface Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	17-May-2021 17:08

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 17-May-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP /Quarterly Surface Samples
Sample ID: HBW1_042721
Collection Date: 27-Apr-2021 09:12

ANALYTICAL REPORT
WorkOrder:HS21041459
Lab ID:HS21041459-04
Matrix:Surface Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	17-May-2021 17:08

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 17-May-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP /Quarterly Surface Samples
Sample ID: GPW1_042721
Collection Date: 27-Apr-2021 09:25

ANALYTICAL REPORT
WorkOrder:HS21041459
Lab ID:HS21041459-05
Matrix:Surface Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	17-May-2021 17:08

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 17-May-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP /Quarterly Surface Samples
Sample ID: GPW3_042721
Collection Date: 27-Apr-2021 09:35

ANALYTICAL REPORT
WorkOrder:HS21041459
Lab ID:HS21041459-06
Matrix:Surface Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	17-May-2021 17:08

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 17-May-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP /Quarterly Surface Samples
WorkOrder: HS21041459

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R383780 (0)	**Test Name :** SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)				**Matrix:** Surface Water	
HS21041459-01	HBW7_042721	27 Apr 2021 08:45			17 May 2021 17:08	1
HS21041459-02	HBW10_042721	27 Apr 2021 09:00			17 May 2021 17:08	1
HS21041459-03	HBW10_042721_a	27 Apr 2021 09:00			17 May 2021 17:08	1
HS21041459-04	HBW1_042721	27 Apr 2021 09:12			17 May 2021 17:08	1
HS21041459-05	GPW1_042721	27 Apr 2021 09:25			17 May 2021 17:08	1
HS21041459-06	GPW3_042721	27 Apr 2021 09:35			17 May 2021 17:08	1

ALS Houston, US Date: 17-May-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP /Quarterly Surface Samples
WorkOrder: **HS21041459**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL/SDL

Acronym	Description
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitaion Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	21-022-0	26-Mar-2022
Dept of Defense	PJLA L20-507-R2	22-Dec-2021
Florida	E87611-30-07/01/2020	30-Jun-2021
Kansas	E-10352 2020-2021	31-Jul-2021
Kentucky	123043, 2021-2022	30-Apr-2022
Louisiana	03087, 2020-2021	30-Jun-2021
North Carolina	624-2021	31-Dec-2021
Oklahoma	2020-165	31-Aug-2021
Texas	T104704231-21-27	30-Apr-2022

ALS Houston, US Date: 17-May-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP /Quarterly Surface Samples
Work Order: HS21041459

SAMPLE TRACKING

Lab Samp ID	Client Sample ID	Action	Date	Person	New Location
HS21041459-01	HBW7_042721	Login	4/28/2021 11:32:37 AM	PMG	Sub
HS21041459-02	HBW10_042721	Login	4/28/2021 11:32:37 AM	PMG	Sub
HS21041459-03	HBW10_042721_a	Login	4/28/2021 11:32:37 AM	PMG	Sub
HS21041459-04	HBW1_042721	Login	4/28/2021 11:32:37 AM	PMG	Sub
HS21041459-05	GPW1_042721	Login	4/28/2021 11:32:37 AM	PMG	Sub
HS21041459-06	GPW3_042721	Login	4/28/2021 11:32:37 AM	PMG	Sub

ALS Houston, US Date: 17-May-21

Sample Receipt Checklist

Work Order ID: HS21041459 **Date/Time Received:** **28-Apr-2021 10:10**

Client Name: Bhate Environmental **Received by:** **Pablo Marinez**

Completed By:	/S/ Paresh M. Giga	28-Apr-2021 11:36	**Reviewed by:**	/S/ RJ Modashia	28-Apr-2021 15:58
	eSignature	Date/Time		eSignature	Date/Time

Matrices: **SW** Carrier name: **FedEx**

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	1 Page(s)
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	COC IDs:none
Samplers name present on COC?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☐	No ☑	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	

Temperature(s)/Thermometer(s):	0.8C U/c	IR31
Cooler(s)/Kit(s):	46453	
Date/Time sample(s) sent to storage:	4/28/2021 11:50	

Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:			

Login Notes: ID's differ :
COC - HBW10_427821 - Labels - HBW1_042721
COC - HBW10_427821_a - Labels - HBW1_042721_a
Logged per bottle labels

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

bhate ENVIRONMENTAL CONSTRUCTION ENERGY

1608 13th Avenue South, Suite 300
Birmingham Alabama 35205
Tel: 205-918-4000
Fax: 205-918-4050

Chain of Custody and Analytical Request

Page: _____ of _____

Project/Phase No: NWO1312.0150

COC Number(1): _____

LIMS Number: _____

Facility/Base I.D.: LHAAP

Project/Site Name: LHAAP / Quarterly Surface Water Samples

Client Name:

Collected by: Scott Beesinger

Field Sample ID (30 Characters Max)	ERPIMS LOCID (15 Characters Max)	Date Collected (dd-mmm-yyyy)	Time Collected (Military) (hhmm)	Sample Depth (beginning - ending)	SA Code (2)	Sample Number (3)	Sample Matrix (4)	Number of containers	PERCHLORATE	Ambient Blank Lot Control Number	Equipment Blank Lot Control Number	Trip Blank Lot Control Number	Cooler ID
HBW7_042721		27 Apr 2021	08:45	-	N		WS	1	X				
HBW10_427821		27 Apr 2021	09:00	-	N		WS	1	X				
HBW10_427821_a		27 Apr 2021	09:00	-	FD		WS	1	X				
HBW1_042721		27 Apr 2021	09:12		N		WS	1	X				
GPW1_042721		27 Apr 2021	09:25		N		WS	1	X				
GPW3_042721		27 Apr 2021	09:35	-	N		WS	1	X				
				-									
				-									
				-									
				-									
				-									

Sample Analysis Requested (5) | Quality Assurance Samples (6)

HS21041459
Bhate Environmental Associates, Inc.
LHAAP /Quarterly Surface Samples

COMMENTS:

Standard TAT

Custody Transfers Prior to Receipt by Laboratory

Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1. Scott Beesinger	4/27/21	1430	1. Barb M	4/28/21	10:10
2.			2.		
3.			3.		

Sample Delivery Details / Laboratory Receipt

Delivered Directly to Lab: _____ Shipped No.:

_____ Method of Shipment: _____

_____ Fed Ex _____ Airbill Number:

_____ Analytical Lab: ALS 10450 Stancliff Rd, Suite 210 Houston, TX 77099 (281) 530-5656

ATTN: SONIA WEST Lab Recipient: Delivery Date/Time:

1.) Chain of Custody Number = date collected + custody number (e.g. 09-02-1999-01)

2.) Sample Type (SA) Codes: N = Normal Sample, TB = Trip Blank (-c) Sample, FD = Field Duplicate (-a) Samples, FR = Field Replicate (-b) Samples, EB = Equipment Blank (-d) Samples, MS = Matrix Spike, SD = Matrix Spike Duplicate, AB = Ambient Blank (-e)

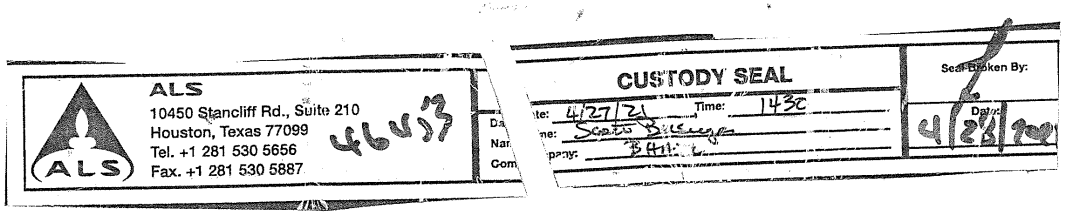
3.) Sample Number: Unique sample number collected from a particular location per day. (e.g. Groundwater sample collected from MW-1 on 10/10/99 = 01, if sampled again on 10/10/99 = 02, etc.)

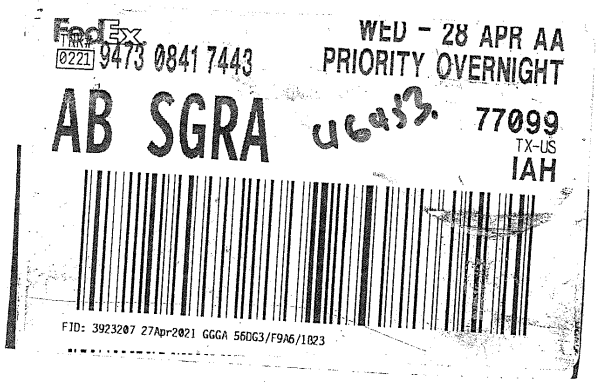
4.) Matrix Codes: GS = Soil Gas, WG = Groundwater, WS = Surface Water, SO = Soil, SE = Sediment, SL = Sludge, SS = Surface Soil Samples, WQ = Aqueous Blank Samples (trip, equipment, ambient, etc), SQ = Soil Blanks

5.) Sample Analysis Requested: Analytical method requested and number of containers provided for each.

6.) Quality assurance samples are assigned by date (ddmmyy) and the sample number associated with the sample (01, 02, etc) (e.g. Equipment blank collected in association with MW-1 on 10/10/99 will be designated 10109901 in the Equipment Blank Lot Control

46453 0.2C IRT CFO


ALS
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887
46033
CUSTODY SEAL
Time: 1430
Seal Broken By:


FedEx
0221 9473 0841 7443
WED - 28 APR AA
PRIORITY OVERNIGHT
AB SGRA
46033.
77099
TX-US
IAH
FID: 3923207 27Apr2021 GGGA 56DG3/F9A6/1023

May 17, 2021 Service Request No:E2100492

RJ Modashia
ALS Laboratory Group
10450 Stancliff Road
Suite 210
Houston, TX 77099-4338

Laboratory Results for: HS21041459

Dear RJ,

Enclosed are the results of the sample(s) submitted to our laboratory April 28, 2021
For your reference, these analyses have been assigned our service request number **E2100492.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current TNI standards, where applicable, and except as noted in the laboratory case narrative provided. All results are intended to be considered in their entirety and ALS Environmental is not responsible for use of less than the complete final report. Results apply only to the items submitted to the laboratory, as received for analysis. In accordance with the current TNI Standard, a statement on the estimated uncertainty of measurement of any quantitative analysis will be supplied upon request.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Corey Grandits
Project Manager

ADDRESS 10450 Stancliff Rd., Suite 210, Houston, TX 77099
PHONE +1 281 530 5656 | FAX +1 281 530 5887
ALS Group USA, Corp.
dba ALS Environmental

Certificate of Analysis

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

ALS Environmental

Client:	ALS Houston	**Service Request No.:**	E2100492
Project:	HS21041459	**Date Received:**	04/28/21
Sample Matrix:	W		

CASE NARRATIVE

All analyses were performed in adherence to the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier II. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Six samples were received for analysis at ALS Environmental in Houston on 04/28/21.

The samples were received in good condition and are consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Data Validation Notes and Discussion

Precision and Accuracy:

EQ2100263: Laboratory Control Spike/Duplicate Laboratory Control Spike (LCS/DLCS) samples were analyzed and reported in lieu of a MS/MSD for this extraction batch. The LCS and DLCS recoveries are within QC limits.

DoD certification is held for the method/matrix/analytes provided in this report.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS group USA Corp dba ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

Client: ALS Environmental - US **Service Request:**E2100492
Project: HS21041459

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
E2100492-001	HBW7_042721	4/27/2021	0845
E2100492-002	HBW10_042721	4/27/2021	0900
E2100492-003	HBW10_042721_a	4/27/2021	0900
E2100492-004	HBW1_042721	4/27/2021	0912
E2100492-005	GPW1_042721	4/27/2021	0925
E2100492-006	GPW3_042721	4/27/2021	0935

Service Request Summary

Folder #: **E2100492**
Client Name: ALS Environmental - US
Project Name: HS21041459
Project Number:

Report To: RJ Modashia
ALS Laboratory Group
10450 Stancliff Road
Houston, TX 77099-4338
USA
Phone Number: 281-530-5656
Cell Number:
Fax Number: 281-530-5887
E-mail: rj.modashia@alsglobal.com

Project Chemist: Corey Grandits
Originating Lab: HOUSTON
Logged By: CGRANDITS
Date Received: 04/28/21
Internal Due Date: 5/12/2021
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number: HS21041459
EDD: No EDD Specified

6 120 mL-Plastic Bottle Natural WM Unpreserved
Location: EHRMS-WIC 10D
Pressure Gas:

Lab Samp No.	Client Samp No	Matrix	Collected	HOUSTON ClO4 DOD/6850
E2100492-001	HBW7_042721	Surface Water	04/27/21 0845	II
E2100492-002	HBW10_042721	Surface Water	04/27/21 0900	II
E2100492-003	HBW10_042721_a	Surface Water	04/27/21 0900	II
E2100492-004	HBW1_042721	Surface Water	04/27/21 0912	II
E2100492-005	GPW1_042721	Surface Water	04/27/21 0925	II
E2100492-006	GPW3_042721	Surface Water	04/27/21 0935	II

Service Request Summary

Folder #: **E2100492**
Client Name: ALS Environmental - US
Project Name: HS21041459
Project Number:

Report To: RJ Modashia
ALS Laboratory Group
10450 Stancliff Road
Houston, TX 77099-4338
USA
Phone Number: 281-530-5656
Cell Number:
Fax Number: 281-530-5887
E-mail: rj.modashia@alsglobal.com

Project Chemist: Corey Grandits
Originating Lab: HOUSTON
Logged By: CGRANDITS
Date Received: 04/28/21
Internal Due Date: 5/12/2021
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number: HS21041459
EDD: No EDD Specified

6 120 mL-Plastic Bottle Natural WM Unpreserved
Location: EHRMS-WIC 10D
Pressure Gas:

Data Qualifiers

Lab Standard

+	Possible Tedlar bag artifact.
A	TIC is a suspected aldol-condensation product
B	Analyte found in the associated method blank as well as in the sample.
BC	Reported results are not blank corrected.
BH	The back section of the tube yielded higher results than the front.
BT	Results indicated possible breakthrough; back section >=10% front section.
C	Result identification confirmed.
D	Compound identified in an analysis at a secondary dilution factor
D	Spike was diluted out
DE	Reported results are corrected for desorption efficiency.
E	Estimated value. Concentration above calibration range
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
H1	Sample analysis performed past holding time. See case narrative.
H2	Initial analysis within holding time. Reanalysis for the required dilution was past holding time.
H3	Sample was received and analyzed past holding time.
H4	Sample was extracted past required extraction holding time, but analyzed within analysis holding time. See case narrative.
I	Internal standard not within the specified limits. See case narrative.
J	Estimated Value. Concentration found below MRL.
K	A deflection in the QC ion may indicate interference with the quantitation of this ion. The concentration of this analyte should be considered as an estimate.
K	Analyte was detected above the method reporting limit prior to normalization.
K	The reference ion ratio was outside acceptance criteria, which may indicate a potential bias to this result.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
L1	Laboratory control sample recovery outside the specified limits; results may be biased high.
L2	Laboratory control sample recovery outside the specified limits; results may be biased low.
L3	Laboratory control sample recovery outside the specified limits.
M	Matrix interference; results may be biased high.
M	The duplicate injection precision not met.
M1	Matrix interference due to coelution with a non-target compound; results may be biased high.
N	Presumptive evidence of a compound for TICs that have been identified based on a mass spectral library search.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.

Data Qualifiers

Lab Standard

O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
P	Indicates chlorodiphenyl ether interference present at the retention time of the target compound.
P	Pesticide/Aroclor target analyte > 40% difference for detected concentrations between GC columns
Q	Indicates as estimated value because the P and P + 2 theoretical abundance ratio does not meet method criteria.
R	Duplicate Precision not met.
R1	Duplicate precision not within the specified limits; however, the results are below the MRL and considered estimated.
S	Surrogate recovery not within specified limits.
S	The reported value was determined by the Method of Standard Additions (MSA).
T	Analyte is a tentatively identified compound, result is estimated.
U	Compound was analyzed for, but was not detected (ND).
V1	The continuing calibration verification standard was outside (biased high) the specified limits for this compound.
V2	The continuing calibration verification standard was outside (biased low) the specified limits for this compound.
W	Result quantified, but the corresponding peak was detected outside the generated retention time window.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
X	See case narrative.
Y	Recovery outside limits
Y	The chromatogram resembles a petroleum product but does not match the calibration standard.
Z	The chromatogram does not resemble a petroleum product.
i	The MRL/MDL has been elevated due to a matrix interference.

ALS Laboratory Group

Acronyms

Cal	Calibration
Conc	CONCentration
Dioxin(s)	Polychlorinated dibenzo-p-dioxin(s)
EDL	Estimated Detection Limit
EMPC	Estimated Maximum Possible Concentration
Flags	Data qualifiers
Furan(s)	Polychlorinated dibenzofuran(s)
g	Grams
ICAL	Initial CALibration
ID	IDentifier
Ions	Masses monitored for the analyte during data acquisition
L	Liter (s)
LCS	Laboratory Control Sample
DLCS	Duplicate Laboratory Control Sample
MB	Method Blank
MCL	Method Calibration Limit
MDL	Method Detection Limit
mL	Milliliters
MS	Matrix Spiked sample
DMS	Duplicate Matrix Spiked sample
NO	Number of peaks meeting all identification criteria
PCDD(s)	Polychlorinated dibenzo-p-dioxin(s)
PCDF(s)	Polychlorinated dibenzofuran(s)
ppb	Parts per billion
ppm	Parts per million
ppq	Parts per quadrillion
ppt	Parts per trillion
QA	Quality Assurance
QC	Quality Control
Ratio	Ratio of areas from monitored ions for an analyte
% Rec.	Percent recovery
RPD	Relative Percent Difference
RRF	Relative Response Factor
RT	Retention Time
SDG	Sample Delivery Group
S/N	Signal-to-noise ratio
TEF	Toxicity Equivalence Factor
TEQ	Toxicity Equivalence Quotient

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ALS Environmental

State Certifications, Accreditations, and Licenses

Agency	Number	Expire Date
American Association for Laboratory Accreditation	2897.01 2020	11/30/2021
Arizona Department of Health Services	AZ0793-2020	5/27/2021
Arkansas Department of Environmental Quality	21-022-0	3/26/2022
Department of Defense	A2LA 2897.01	11/30/2021
Florida Department of Health	E87611-2020	6/30/2021
Hawaii Department of Health	2021-2022	4/30/2022
Kansas Department of Health and Environment	E-10352-2020	7/31/2021
Louisiana Department of Environmental Quality	03087-2020	6/30/2021
Louisiana Department of Health and Hospitals	LA028-2021	12/31/2021
Maine Department of Health and Human Services	2020016	6/5/2022
Maryland Department of the Environment	343-2020	6/30/2021
Minnesota Department of Health	2021671	12/31/2021
Nevada Department of Concervation and Natural Resources	TX026932021-4	7/31/2021
New Hampshire Environmental Laboratory Accreditation Program	209421	4/24/2022
New Jersey Department of Environmental Protection	TX008	6/30/2021
Oklahoma Department of Environmental Quality	2020-123	8/31/2021
Pennsylvania Department of Environmental Protection	014	6/30/2021
Tennessee Department of Environment and Concervation	04016-2021	4/30/2022
United States Department of Agriculture	P330-19-00299	10/10/2022

Chain of Custody

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

10450 Stancliff Rd, Ste 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887
www.alsglobal.com

Subcontract Chain of Custody

SAMPLING STATE: **Texas** **COC ID:** **15993**

SUBCONTRACT TO:

ALS Environmental
10450 Stancliff RoadSuite 210
Houston, TX 77084

Phone: +1 281 530 5656

CUSTOMER INFORMATION:

Company:	ALS Houston
Contact:	RJ Modashia
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Email:	RJ.Modashia@alsglobal.com
Alternate Contact:	
Email:	

INVOICE INFORMATION:

Company:	ALS Houston
Contact:	Accounts Payable
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Reference:	HS21041459
TSR:	Sonia West

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS21041459-01**	**HBW7_042721**	**Surface Water**	**27 Apr 2021 08:45**
	Provide Level II and Level IV reports in separate pdf			12 May 2021
2.	**HS21041459-02**	**HBW10_042721**	**Surface Water**	**27 Apr 2021 09:00**
	Provide Level II and Level IV reports in separate pdf			12 May 2021
3.	**HS21041459-03**	**HBW10_042721_a**	**Surface Water**	**27 Apr 2021 09:00**
	Provide Level II and Level IV reports in separate pdf			12 May 2021
4.	**HS21041459-04**	**HBW1_042721**	**Surface Water**	**27 Apr 2021 09:12**
	Provide Level II and Level IV reports in separate pdf			12 May 2021
5.	**HS21041459-05**	**GPW1_042721**	**Surface Water**	**27 Apr 2021 09:25**
	Provide Level II and Level IV reports in separate pdf			12 May 2021
6.	**HS21041459-06**	**GPW3_042721**	**Surface Water**	**27 Apr 2021 09:35**
	Provide Level II and Level IV reports in separate pdf			12 May 2021

Comments: Please analyze for the analysis listed above.
Send report to the emails shown above.

QC Level: DOD IV (DoD Data Package)

Subcontract Chain of Custody

SAMPLING STATE: **Texas** **COC ID:** **15993**

Relinquished By: _____ Date/Time: _____

Received By: _____ Date/Time: 4/28/21 1404

Cooler ID(s): _____ Temperature(s): 1.0

ALS Environmental

Cooler Receipt Form

Project Chemist CA

Client/Project ALS-H

Thermometer ID IR#1

Date/Time Received: 4/28/21

Initials: CA

Date/Time Logged in: 4/28/21

Initials CA

1. Method of delivery: ○ US Mail ○ Fed Ex ○ UPS ○ DHL ✓ ALS Courier ○ Client

2. Samples received in: ✓ Cooler ○ Box ○ Envelope ○ Other

3. Were custody seals on coolers? ○ Yes ✓ No

Were they intact? ○ Yes ○ No ✓ N/A

Were they signed and dated? ○ Yes ○ No ✓ N/A

If yes, how many and where?

4. Packing Material: ○ Inserts ✓ Baggies ○ Bubble Wrap ○ Gel Packs ✓ Wet Ice ○ Sleeves ○ Other

5. Foreign or Regulated Soil? ○ Yes ○ No Location of Sampling:

Cooler Tracking Number	COC ID	Date Opened	Time Opened	Opened By	Temp. °C	Temp Blank?
NA		4/28/21	1404	CA	1.0	✓
						☐
						☐
						☐

6. Were custody papers properly filled out (ink, signed, dated, etc)? ✓ Yes ○ No

7. Did all bottles arrive in good condition (not broken, no signs of leakage)? ✓ Yes ○ No

8. Were all sample labels complete (i.e., sample ID, analysis, preservation, etc)? ✓ Yes ○ No

9. Were appropriate bottles/containers and volumes received for the requested tests? ✓ Yes ○ No

10. Did sample labels and tags agree with custody documents? ✓ Yes ○ No

Notes, Discrepancies, & Resolutions:

Service request Label:

10450 Stancliff Rd., Suite 210
Houston, TX 77099
T: +1 713 266 1599
F: +1 713 266 1599
www.alsglobal.com

SAMPLE ACCEPTANCE POLICY

This policy outlines the criteria samples must meet to be accepted by ALS Environmental – Houston HRMS.

Cooler Custody Seals (desirable, mandatory if specified in SAP):

- ✓ Intact on outside of cooler, signed and dated

Chain-of-Custody (COC) documentation (mandatory):

The following is required on each COC:

- ✓ Sample ID, the location, date and time of collection, collector's name, preservation type, sample type, and any other special remarks concerning the sampleThe COC must be completed in ink.
- ✓ Signature and date of relinquishing party.

In the absence of a COC at sample receipt, the COC will be requested from the client.

Sample Integrity (mandatory):

Samples are inspected upon arrival to ensure that sample integrity was not compromised during transfer to the laboratory.

- ✓ Sample containers must arrive in good condition (not broken or leaking).
- ✓ Samples must be labeled appropriately, including Sample IDs, and requested test using durable labels and indelible ink.
- ✓ The correct type of sample bottle must be used for the method requested.
- ✓ An appropriate sample volume, or weight, must be received.
- ✓ Sample IDs and number of containers must reconcile with the COC.
- ✓ Samples must be received within the method defined holding time.

Temperature Requirement (varies by sample matrix):

- ✓ Aqueous and Non-aqueous samples must be shipped and stored cold, at 0 to 6ºC.
- ✓ Tissue samples must be shipped and stored frozen, at -20 to -10ºC.
- ✓ Air samples are shipped and stored cold, at 0 to 6ºC
- ✓ The sample temperature must be recorded on the COC

All cooler inspections are documented on the Cooler Receipt Form (CRF). A separate CRF is completed for each service request. Any samples not meeting the above criteria are noted on the CRF and the Project Manager notified. The Project Manager must resolve any sample integrity issues with the client prior to proceeding with the analysis. Such resolutions are documented in writing and filed with the project folder. Data associated with samples received outside of this acceptance policy will be qualified on the case narrative of the final report

Preparation Information Benchsheets

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

Preparation Information Benchsheet

Prep Run#: 378427 **Prep WorkFlow:** GenExt28Day **Status:** Prepped
Team: Semivoa GCMS/GRIVERA **Prep Method:** Method **Prep Date/Time:** 4/30/21 12:06

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E2100470-001	16WW40-210421	.01	6850/ClO4 DOD			Ground Water	10mL	
2	E2100470-002	16WW12-210421	.01	6850/ClO4 DOD			Ground Water	10mL	
3	E2100492-001	HBW7_042721	.01	6850/ClO4 DOD			Surface Water	10mL	
4	E2100492-002	HBW10_042721	.01	6850/ClO4 DOD			Surface Water	10mL	
5	E2100492-003	HBW10_042721_a	.01	6850/ClO4 DOD			Surface Water	10mL	
6	E2100492-004	HBW1_042721	.01	6850/ClO4 DOD			Surface Water	10mL	
7	E2100492-005	GPW1_042721	.01	6850/ClO4 DOD			Surface Water	10mL	
8	E2100492-006	GPW3_042721	.01	6850/ClO4 DOD			Surface Water	10mL	
9	E2100493-001	LH18/24-SP650_042721_BIX	.01	6850/ClO4 DOD			Surface Water	10mL	
10	E2100529-001	16WW27-210422	.01	6850/ClO4 DOD			Ground Water	10mL	
11	E2100529-002	16WW43-210422	.01	6850/ClO4 DOD			Ground Water	10mL	
12	E2100529-003	16WW23-210422	.01	6850/ClO4 DOD			Ground Water	10mL	
13	E2100529-004	16WW24-210422	.01	6850/ClO4 DOD			Ground Water	10mL	
14	E2100529-005	16IW09-210422	.01	6850/ClO4 DOD			Ground Water	10mL	
15	E2100529-006	16WW49-210422	.01	6850/ClO4 DOD			Ground Water	10mL	
16	E2100529-007	16WW48-210422	.01	6850/ClO4 DOD			Ground Water	10mL	
17	EQ2100263-01	MB		6850/ClO4 DOD			Liquid	10mL	
18	EQ2100263-02	LCS		6850/ClO4 DOD			Liquid	10mL	
19	EQ2100263-03	DLCS		6850/ClO4 DOD			Liquid	10mL	

Spiking Solutions

Name: Perchlorate Intermediate Stock1 Inventory ID 214035 Logbook Ref: Perchlorate Expires On: 05/23/2021

EQ2100263-02 1.00µL EQ2100263-03 1.00µL

Name: Perchlorate Internal Standard 1ug/mL Inventory ID 214820 Logbook Ref: Perchlorate Internal Standard Expires On: 07/03/2021

E2100470-001 100.00µL E2100470-002 100.00µL E2100492-001 100.00µL E2100492-002 100.00µL E2100492-003 100.00µL E2100492-004 100.00µL
E2100492-005 100.00µL E2100492-006 100.00µL E2100493-001 100.00µL E2100529-001 100.00µL E2100529-002 100.00µL E2100529-003 100.00µL
E2100529-004 100.00µL E2100529-005 100.00µL E2100529-006 100.00µL E2100529-007 100.00µL EQ2100263-01 100.00µL EQ2100263-02 100.00µL
EQ2100263-03 100.00µL

Preparation Information Benchsheet

Prep Run#: 378427
Team: Semivoa GCMS/GRIVERA
Prep WorkFlow: GenExt28Day
Prep Method: Method
Status: Prepped
Prep Date/Time: 4/30/21 12:06

Preparation Steps

Step: Preparation
Started: 4/30/21 12:06
Finished: 4/30/21 14:30
By: KBROWN
Comments

Comments: _____

Reviewed By: KB Date: 4/30/21

Chain of Custody

Relinquished By:		Date:		Extracts Examined
Received By:		Date:		Yes No

Analytical Results

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100492
Project:	HS21041459	**Date Collected:**	4/27/21 0845
Sample Matrix:	Surface Water	**Date Received:**	4/28/21
Sample Name:	HBW7_042721	**Units:**	µg/L
Lab Code:	E2100492-001	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**0.0373**	J	0.100	0.0500	0.0250	1	4/30/21	5/14/21 11:16	378427	723684	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100492
Project:	HS21041459	**Date Collected:**	4/27/21 0900
Sample Matrix:	Surface Water	**Date Received:**	4/28/21
Sample Name:	HBW10_042721	**Units:**	µg/L
Lab Code:	E2100492-002	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	ND	U	0.100	0.0500	0.0250	1	4/30/21	5/14/21 11:26	378427	723684	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100492
Project:	HS21041459	**Date Collected:**	4/27/21 0900
Sample Matrix:	Surface Water	**Date Received:**	4/28/21
Sample Name:	HBW10_042721_a	**Units:**	µg/L
Lab Code:	E2100492-003	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**0.0256**	J	0.100	0.0500	0.0250	1	4/30/21	5/14/21 11:35	378427	723684	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100492
Project:	HS21041459	**Date Collected:**	4/27/21 0912
Sample Matrix:	Surface Water	**Date Received:**	4/28/21
Sample Name:	HBW1_042721	**Units:**	µg/L
Lab Code:	E2100492-004	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**0.0410**	J	0.100	0.0500	0.0250	1	4/30/21	5/14/21 11:47	378427	723684	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100492
Project:	HS21041459	**Date Collected:**	4/27/21 0925
Sample Matrix:	Surface Water	**Date Received:**	4/28/21
Sample Name:	GPW1_042721	**Units:**	µg/L
Lab Code:	E2100492-005	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**0.0268**	J	0.100	0.0500	0.0250	1	4/30/21	5/14/21 11:54	378427	723684	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100492
Project:	HS21041459	**Date Collected:**	4/27/21 0935
Sample Matrix:	Surface Water	**Date Received:**	4/28/21
Sample Name:	GPW3_042721	**Units:**	µg/L
Lab Code:	E2100492-006	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**0.0321**	J	0.100	0.0500	0.0250	1	4/30/21	5/14/21 12:03	378427	723684	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100492
Project:	HS21041459	**Date Collected:**	NA
Sample Matrix:	Surface Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	EQ2100263-01	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	ND	U	0.100	0.0500	0.0250	1	4/30/21	5/1/21 16:47	378427	722220	

Accuracy & Precision

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2100492
Project:	HS21041459	**Date Analyzed:**	5/ 1/21
Sample Matrix:	Surface Water		

Lab Control Sample Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Units:**	µg/L
Prep Method:	Method	**Basis:**	NA
		Extraction Lot:	378427

	Lab Control Sample EQ2100263-02			Duplicate Lab Control Sample EQ2100263-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	0.0981	0.100	98	0.112	0.100	112	84 - 119	13	15

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100492
Project:	HS21041459	**Date Collected:**	NA
Sample Matrix:	Surface Water	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2100263-02	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**0.0981**	J	0.100	0.0500	0.0250	1	4/30/21	5/1/21 16:31	378427	722220	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100492
Project:	HS21041459	**Date Collected:**	NA
Sample Matrix:	Surface Water	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2100263-03	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**0.112**		0.100	0.0500	0.0250	1	4/30/21	5/1/21 16:47	378427	722220	

10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887

July 15, 2021

Marcia Olive
Bhate Environmental Associates, Inc.
445 Union Blvd Ste 129
Lakewood, CO 80228

Work Order: **HS21070328**

Laboratory Results for: **LHAAP /Quarterly Surface Water Samples**

Dear Marcia Olive,

ALS Environmental received 6 sample(s) on Jul 08, 2021 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Generated By: JUMOKE.LAWAL
Ragen Giga
Project Manager

ALS Houston, US Date: 15-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP /Quarterly Surface Water Samples
Work Order: HS21070328

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS21070328-01	HBW7_070621	Surface Water		06-Jul-2021 10:08	08-Jul-2021 10:00	☐
HS21070328-02	HBW10_070621	Surface Water		06-Jul-2021 10:23	08-Jul-2021 10:00	☐
HS21070328-03	HBW1_070621	Surface Water		06-Jul-2021 10:35	08-Jul-2021 10:00	☐
HS21070328-04	HBW1_070621_a	Surface Water		06-Jul-2021 10:35	08-Jul-2021 10:00	☐
HS21070328-05	GPW1_070621	Surface Water		06-Jul-2021 10:58	08-Jul-2021 10:00	☐
HS21070328-06	GPW3_070621	Surface Water		06-Jul-2021 11:09	08-Jul-2021 10:00	☐

ALS Houston, US Date: 15-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP /Quarterly Surface Water Samples
Work Order: HS21070328

CASE NARRATIVE

Work Order Comments

• The analysis for Perchlorate was subcontracted to our ALS Houston TX, High Resolution Lab. Final report attached.

ALS Houston, US Date: 15-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP /Quarterly Surface Water Samples
Sample ID: HBW7_070621
Collection Date: 06-Jul-2021 10:08

ANALYTICAL REPORT
WorkOrder:HS21070328
Lab ID:HS21070328-01
Matrix:Surface Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	15-Jul-2021 17:25

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 15-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP /Quarterly Surface Water Samples
Sample ID: HBW10_070621
Collection Date: 06-Jul-2021 10:23

ANALYTICAL REPORT
WorkOrder:HS21070328
Lab ID:HS21070328-02
Matrix:Surface Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	15-Jul-2021 17:25

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 15-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP /Quarterly Surface Water Samples
Sample ID: HBW1_070621
Collection Date: 06-Jul-2021 10:35

ANALYTICAL REPORT
WorkOrder:HS21070328
Lab ID:HS21070328-03
Matrix:Surface Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	15-Jul-2021 17:25

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 15-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP /Quarterly Surface Water Samples
Sample ID: HBW1_070621_a
Collection Date: 06-Jul-2021 10:35

ANALYTICAL REPORT
WorkOrder:HS21070328
Lab ID:HS21070328-04
Matrix:Surface Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	15-Jul-2021 17:25

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 15-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP /Quarterly Surface Water Samples
Sample ID: GPW1_070621
Collection Date: 06-Jul-2021 10:58

ANALYTICAL REPORT
WorkOrder:HS21070328
Lab ID:HS21070328-05
Matrix:Surface Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	15-Jul-2021 17:25

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 15-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP /Quarterly Surface Water Samples
Sample ID: GPW3_070621
Collection Date: 06-Jul-2021 11:09

ANALYTICAL REPORT
WorkOrder:HS21070328
Lab ID:HS21070328-06
Matrix:Surface Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	15-Jul-2021 17:25

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 15-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP /Quarterly Surface Water Samples
WorkOrder: HS21070328

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R387556 (0)	**Test Name :** SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)				**Matrix:** Surface Water	
HS21070328-01	HBW7_070621	06 Jul 2021 10:08			15 Jul 2021 17:25	1
HS21070328-02	HBW10_070621	06 Jul 2021 10:23			15 Jul 2021 17:25	1
HS21070328-03	HBW1_070621	06 Jul 2021 10:35			15 Jul 2021 17:25	1
HS21070328-04	HBW1_070621_a	06 Jul 2021 10:35			15 Jul 2021 17:25	1
HS21070328-05	GPW1_070621	06 Jul 2021 10:58			15 Jul 2021 17:25	1
HS21070328-06	GPW3_070621	06 Jul 2021 11:09			15 Jul 2021 17:25	1

ALS Houston, US Date: 15-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP /Quarterly Surface Water Samples
WorkOrder: **HS21070328**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL/SDL

Acronym	Description
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitaion Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	21-022-0	26-Mar-2022
Dept of Defense	PJLA L20-507-R2	22-Dec-2021
Florida	E87611-33	30-Jun-2022
Illinois	2000322021-7	09-May-2022
Kansas	E-10352 2020-2021	31-Jul-2021
Kentucky	123043, 2021-2022	30-Apr-2022
Louisiana	03087, 2021-2022	30-Jun-2022
North Carolina	624-2021	31-Dec-2021
Oklahoma	2020-165	31-Aug-2021
Texas	T104704231-21-27	30-Apr-2022
Utah	TX026932021-10	31-Jul-2021

ALS Houston, US Date: 15-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP /Quarterly Surface Water Samples
Work Order: HS21070328

SAMPLE TRACKING

Lab Samp ID	Client Sample ID	Action	Date	Person	New Location
HS21070328-01	HBW7_070621	Login	7/8/2021 11:51:19 AM	PMG	Sub
HS21070328-02	HBW10_070621	Login	7/8/2021 11:51:19 AM	PMG	Sub
HS21070328-03	HBW1_070621	Login	7/8/2021 11:51:19 AM	PMG	Sub
HS21070328-04	HBW1_070621_a	Login	7/8/2021 11:51:19 AM	PMG	Sub
HS21070328-05	GPW1_070621	Login	7/8/2021 11:51:19 AM	PMG	Sub
HS21070328-06	GPW3_070621	Login	7/8/2021 11:51:19 AM	PMG	Sub

ALS Houston, US Date: 15-Jul-21

Sample Receipt Checklist

Work Order ID: HS21070328 **Date/Time Received:** **08-Jul-2021 10:00**

Client Name: Bhate Environmental **Received by:** **Pablo Marinez**

Completed By: */S/ Paresh M. Giga* 08-Jul-2021 11:54 **Reviewed by:** */S/ Bernadette A. Fini* 08-Jul-2021 14:37

eSignature Date/Time eSignature Date/Time

Matrices: **Water** Carrier name: **FedEx Priority Overnight**

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	1 Page(s)
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	COC IDs:none
Samplers name present on COC?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	0.5C UC	IR31	
Cooler(s)/Kit(s):	45898		
Date/Time sample(s) sent to storage:	7/8/2021 12:05		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:			

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

bhate ENVIRONMENTAL CONSTRUCTION ENERGY

1608 13th Avenue South, Suite 300
Birmingham Alabama 35205
Tel: 205-918-4000
Fax: 205-918-4050

Chain of Custody and Analytical Request

Page: ____ of ____

Project/Phase No: NWO1312.0150

COC Number(1): ____

LIMS Number: ____

Facility/Base I.D.: LHAAP

Project/Site Name: LHAAP / Quarterly Surface Water Samples

Client Name:

Collected by: Scott Beesinger

Field Sample ID (30 Characters Max)	ERPIMS LOCID (15 Characters Max)	Date Collected (dd-mmm-yyyy)	Time Collected (Military) (hhmm)	Sample Depth (beginning - ending)	SA Code (2)	Sample Number (3)	Sample Matrix (4)	Number of containers	PERCHLORATE										Ambient Blank Lot Control Number	Equipment Blank Lot Control Number	Trip Blank Lot Control Number	Cooler ID
								Sample Analysis Requested (5)											Quality Assurance Samples (6)			
HBW7_070621		06 Jul 2021	10:08	-	N		WS	1	X													
HBW10_070621		06 Jul 2021	10:23	-	N		WS	1	X													
HBW1_070621		06 Jul 2021	10:35	-	N		WS	1	X													
HBW1_070621_a		06 Jul 2021	10:35		FD		WS	1	X													
GPW1_070621		06 Jul 2021	10:58		N		WS	1	X													
GPW3_070621		06 Jul 2021	11:09	-	N		WS	1	X													
				-																		
				-																		
				-																		
				-																		
				-																		

HS21070328
Bhate Environmental Associates, Inc.
LHAAP /Quarterly Surface Water Samples

COMMENTS:

Standard TAT

Custody Transfers Prior to Receipt by Laboratory

Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1. Scott Beesinger	7/7/21	1430	1.	7/8/21	1010
2.			2.		
3.			3.		

Sample Delivery Details / Laboratory Receipt

Delivered Directly to Lab: ____ Shipped ____ No.:

Method of Shipment: ____

Fed Ex ____ Airbill Number: ____

Analytical Lab: ALS 10450 Stancliff Rd, Suite 210 Houston, TX 77099 (281) 530-5656

ATTN: SONIA WEST Lab Recipient: Delivery Date/Time:

1.) Chain of Custody Number = date collected + custody number (e.g. 09-02-1999-01)

2.) Sample Type (SA) Codes: N = Normal Sample, TB = Trip Blank (-c) Sample, FD = Field Duplicate (-a) Samples, FR = Field Replicate (-b) Samples, EB = Equipment Blank (-d) Samples, MS = Matrix Spike, SD = Matrix Spike Duplicate, AB = Ambient Blank (-e)

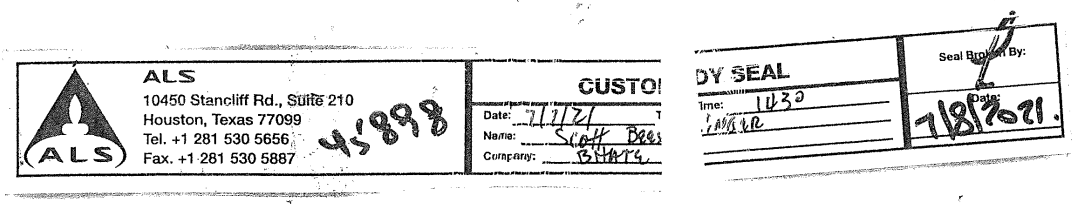
3.) Sample Number: Unique sample number collected from a particular location per day. (e.g. Groundwater sample collected from MW-1 on 10/10/99 = 01, if sampled again on 10/10/99 = 02, etc.)

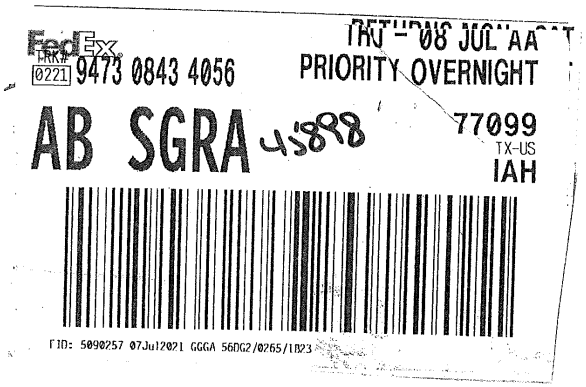
4.) Matrix Codes: GS = Soil Gas, WG = Groundwater, WS = Surface Water, SO = Soil, SE = Sediment, SL = Sludge, SS = Surface Soil Samples, WQ = Aqueous Blank Samples (trip, equipment, ambient, etc), SQ = Soil Blanks

5.) Sample Analysis Requested: Analytical method requested and number of containers provided for each.

6.) Quality assurance samples are assigned by date (ddmmyy) and the sample number associated with the sample (01, 02, etc) (e.g. Equipment blank collected in association with MW-1 on 10/10/99 will be designated 10109901 in the Equipment Blank Lot Control

45698 0.3C
IR51 cfo


ALS
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887
45898
CUSTO
Date: 7/7/21
Name: Scott Bee
Company: BHATS
DY SEAL
Time: 1430
Seal Broken By:
Date:
7/8/2021.


FedEx
TRK#
0221 9473 0843 4056
THU - 08 JUL AA
PRIORITY OVERNIGHT
AB SGRA 45898
77099
TX-US
IAH
PID: 5090257 07Jul2021 GGGA 56DG2/0265/1B23

July 15, 2021 Service Request No:E2100765

Ragen Giga
ALS Environmental - US
10450 Stancliff Rd Suite 210
Houston, TX 77099

Laboratory Results for: HS21070328

Dear Ragen,

Enclosed are the results of the sample(s) submitted to our laboratory July 08, 2021
For your reference, these analyses have been assigned our service request number **E2100765.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current TNI standards, where applicable, and except as noted in the laboratory case narrative provided. All results are intended to be considered in their entirety and ALS Environmental is not responsible for use of less than the complete final report. Results apply only to the items submitted to the laboratory, as received for analysis. In accordance with the current TNI Standard, a statement on the estimated uncertainty of measurement of any quantitative analysis will be supplied upon request.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Corey Grandits
Project Manager

ADDRESS 10450 Stancliff Rd., Suite 210, Houston, TX 77099
PHONE +1 281 530 5656 | FAX +1 281 530 5887
ALS Group USA, Corp.
dba ALS Environmental

Certificate of Analysis

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

ALS Environmental

Client:	ALS Houston	**Service Request No.:**	E2100765
Project:	HS21070328	**Date Received:**	07/08/21
Sample Matrix:	W		

CASE NARRATIVE

All analyses were performed in adherence to the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier II. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Six samples were received for analysis at ALS Environmental in Houston on 07/08/21.

The samples were received in good condition and are consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Data Validation Notes and Discussion

Precision and Accuracy:

EQ2100430: Laboratory Control Spike/Duplicate Laboratory Control Spike (LCS/DLCS) samples were analyzed and reported in addition to a MS/MSD for this extraction batch. The batch precision (MS/DMS) measurements were determined on another order in the extraction batch. The MS/DMS results are not included in this report. The LCS/DLCS recoveries pass.

DoD certification is held for the method/matrix/analytes provided in

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS group USA Corp dba ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

Client: ALS Environmental - US **Service Request:**E2100765
Project: HS21070328

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
E2100765-001	HBW7_070621	7/6/2021	1008
E2100765-002	HBW10_070621	7/6/2021	1023
E2100765-003	HBW1_070621	7/6/2021	1035
E2100765-004	HBW1_070621_a	7/6/2021	1035
E2100765-005	GPW1_070621	7/6/2021	1058
E2100765-006	GPW3_070621	7/6/2021	1109

Service Request Summary

Folder #: **E2100765**
Client Name: ALS Environmental - US
Project Name: HS21070328
Project Number:

Report To: Ragen Giga
ALS Environmental - US
10450 Stancliff Rd Suite 210
Houston, TX 77099
USA
Phone Number:
Cell Number:
Fax Number:
E-mail: ragenp.giga@alsglobal.com

Project Chemist: Corey Grandits
Originating Lab: HOUSTON
Logged By: CGRANDITS
Date Received: 07/08/21
Internal Due Date: 7/22/2021
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number: HS21070328
EDD: No EDD Specified

6 125 mL-Plastic Bottle Plastic
Location: EHRMS-AirArch 1
Pressure Gas:

Lab Samp No.	Client Samp No	Matrix	Collected	HOUSTON ClO4 DOD/6850
E2100765-001	HBW7_070621	Ground Water	07/06/21 1008	**IV**
E2100765-002	HBW10_070621	Ground Water	07/06/21 1023	**IV**
E2100765-003	HBW1_070621	Ground Water	07/06/21 1035	**IV**
E2100765-004	HBW1_070621_a	Ground Water	07/06/21 1035	**IV**
E2100765-005	GPW1_070621	Ground Water	07/06/21 1058	**IV**
E2100765-006	GPW3_070621	Ground Water	07/06/21 1109	**IV**

Service Request Summary

Folder #: **E2100765**
Client Name: ALS Environmental - US
Project Name: HS21070328
Project Number:

Report To: Ragen Giga
ALS Environmental - US
10450 Stancliff Rd Suite 210
Houston, TX 77099
USA
Phone Number:
Cell Number:
Fax Number:
E-mail: ragenp.giga@alsglobal.com

Project Chemist: Corey Grandits
Originating Lab: HOUSTON
Logged By: CGRANDITS
Date Received: 07/08/21
Internal Due Date: 7/22/2021
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number: HS21070328
EDD: No EDD Specified

6 125 mL-Plastic Bottle Plastic
Location: EHRMS-AirArch 1
Pressure Gas:

Test Comments:

Group	Test/Method	Samples	Comments
Semivoa GCMS	ClO4 DOD/6850	6	Level II due 7/22,IV due 7/29

Data Qualifiers

Lab Standard

+	Possible Tedlar bag artifact.
A	TIC is a suspected aldol-condensation product
B	Analyte found in the associated method blank as well as in the sample.
BC	Reported results are not blank corrected.
BH	The back section of the tube yielded higher results than the front.
BT	Results indicated possible breakthrough; back section >=10% front section.
C	Result identification confirmed.
D	Compound identified in an analysis at a secondary dilution factor
D	Spike was diluted out
DE	Reported results are corrected for desorption efficiency.
E	Estimated value. Concentration above calibration range
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
H1	Sample analysis performed past holding time. See case narrative.
H2	Initial analysis within holding time. Reanalysis for the required dilution was past holding time.
H3	Sample was received and analyzed past holding time.
H4	Sample was extracted past required extraction holding time, but analyzed within analysis holding time. See case narrative.
I	Internal standard not within the specified limits. See case narrative.
J	Estimated Value. Concentration found below MRL.
K	A deflection in the QC ion may indicate interference with the quantitation of this ion. The concentration of this analyte should be considered as an estimate.
K	Analyte was detected above the method reporting limit prior to normalization.
K	The reference ion ratio was outside acceptance criteria, which may indicate a potential bias to this result.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
L1	Laboratory control sample recovery outside the specified limits; results may be biased high.
L2	Laboratory control sample recovery outside the specified limits; results may be biased low.
L3	Laboratory control sample recovery outside the specified limits.
M	Matrix interference; results may be biased high.
M	The duplicate injection precision not met.
M1	Matrix interference due to coelution with a non-target compound; results may be biased high.
N	Presumptive evidence of a compound for TICs that have been identified based on a mass spectral library search.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.

Data Qualifiers

Lab Standard

O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
P	Indicates chlorodiphenyl ether interference present at the retention time of the target compound.
P	Pesticide/Aroclor target analyte > 40% difference for detected concentrations between GC columns
Q	Indicates as estimated value because the P and P + 2 theoretical abundance ratio does not meet method criteria.
R	Duplicate Precision not met.
R1	Duplicate precision not within the specified limits; however, the results are below the MRL and considered estimated.
S	Surrogate recovery not within specified limits.
S	The reported value was determined by the Method of Standard Additions (MSA).
T	Analyte is a tentatively identified compound, result is estimated.
U	Compound was analyzed for, but was not detected (ND).
V1	The continuing calibration verification standard was outside (biased high) the specified limits for this compound.
V2	The continuing calibration verification standard was outside (biased low) the specified limits for this compound.
W	Result quantified, but the corresponding peak was detected outside the generated retention time window.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
X	See case narrative.
Y	Recovery outside limits
Y	The chromatogram resembles a petroleum product but does not match the calibration standard.
Z	The chromatogram does not resemble a petroleum product.
i	The MRL/MDL has been elevated due to a matrix interference.

ALS Laboratory Group

Acronyms

Cal	Calibration
Conc	CONCentration
Dioxin(s)	Polychlorinated dibenzo-p-dioxin(s)
EDL	Estimated Detection Limit
EMPC	Estimated Maximum Possible Concentration
Flags	Data qualifiers
Furan(s)	Polychlorinated dibenzofuran(s)
g	Grams
ICAL	Initial CALibration
ID	IDentifier
Ions	Masses monitored for the analyte during data acquisition
L	Liter (s)
LCS	Laboratory Control Sample
DLCS	Duplicate Laboratory Control Sample
MB	Method Blank
MCL	Method Calibration Limit
MDL	Method Detection Limit
mL	Milliliters
MS	Matrix Spiked sample
DMS	Duplicate Matrix Spiked sample
NO	Number of peaks meeting all identification criteria
PCDD(s)	Polychlorinated dibenzo-p-dioxin(s)
PCDF(s)	Polychlorinated dibenzofuran(s)
ppb	Parts per billion
ppm	Parts per million
ppq	Parts per quadrillion
ppt	Parts per trillion
QA	Quality Assurance
QC	Quality Control
Ratio	Ratio of areas from monitored ions for an analyte
% Rec.	Percent recovery
RPD	Relative Percent Difference
RRF	Relative Response Factor
RT	Retention Time
SDG	Sample Delivery Group
S/N	Signal-to-noise ratio
TEF	Toxicity Equivalence Factor
TEQ	Toxicity Equivalence Quotient

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ALS Environmental

State Certifications, Accreditations, and Licenses

Agency	Number	Expire Date
American Association for Laboratory Accreditation	2897.01 2020	11/30/2021
Arkansas Department of Environmental Quality	21-022-0	3/26/2022
Arkansas Department of Environmental Quality	19-028-0	6/30/2022
Department of Defense	A2LA 2897.01	11/30/2021
Florida Department of Health	E87611-33	6/30/2022
Hawaii Department of Health	2021-2022	4/30/2022
Kansas Department of Health and Environment	E-10352-2020	7/31/2021
Louisiana Department of Environmental Quality	03087-2021	6/30/2022
Louisiana Department of Health and Hospitals	LA028-2021	12/31/2021
Maine Department of Health and Human Services	2020016	6/5/2022
Minnesota Department of Health	2021671	12/31/2021
Nevada Department of Concervation and Natural Resources	TX026932021-4	7/31/2021
New Hampshire Environmental Laboratory Accreditation Program	209421	4/24/2022
Oklahoma Department of Environmental Quality	2020-123	8/31/2021
Pennsylvania Department of Environmental Protection	68-03441-015	6/30/2022
Tennessee Department of Environment and Concervation	04016-2021	4/30/2022
Texas Commision on Environmental Quality	T104704231-21-27	4/30/2022
United States Department of Agriculture	P330-19-00299	10/10/2022
Utah Department of Health Environmental Laboratory Certification	TX026932021-10	7/31/2021

Chain of Custody

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

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www.alsglobal.com

Subcontract Chain of Custody

SAMPLING STATE: **Texas** **COC ID:** **16454**

SUBCONTRACT TO:

ALS Environmental
10450 Stancliff RoadSuite 210
Houston, TX 77084

Phone: +1 281 530 5656

CUSTOMER INFORMATION:

Company: ALS Houston
Contact: RJ Modashia
Address: 10450 Stancliff Rd, Ste 210
Phone: +1 281 530 5656
Email: RJ.Modashia@alsglobal.com
Alternate Contact:
Email:

INVOICE INFORMATION:

Company: ALS Houston
Contact: Accounts Payable
Address: 10450 Stancliff Rd, Ste 210
Phone: +1 281 530 5656
Reference: HS21070328
TSR: Sonia West

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS21070328-01**	**HBW7_070621**	**Surface Water**	**06 Jul 2021 10:08**
	Provide Level II and Level IV reports in separate pdf			22 Jul 2021
2.	**HS21070328-02**	**HBW10_070621**	**Surface Water**	**06 Jul 2021 10:23**
	Provide Level II and Level IV reports in separate pdf			22 Jul 2021
3.	**HS21070328-03**	**HBW1_070621**	**Surface Water**	**06 Jul 2021 10:35**
	Provide Level II and Level IV reports in separate pdf			22 Jul 2021
4.	**HS21070328-04**	**HBW1_070621_a**	**Surface Water**	**06 Jul 2021 10:35**
	Provide Level II and Level IV reports in separate pdf			22 Jul 2021
5.	**HS21070328-05**	**GPW1_070621**	**Surface Water**	**06 Jul 2021 10:58**
	Provide Level II and Level IV reports in separate pdf			22 Jul 2021
6.	**HS21070328-06**	**GPW3_070621**	**Surface Water**	**06 Jul 2021 11:09**
	Provide Level II and Level IV reports in separate pdf			22 Jul 2021

Comments: Please analyze for the analysis listed above.
Send report to the emails shown above.

QC Level: DOD IV (DoD Data Package)

Subcontract Chain of Custody

SAMPLING STATE: **Texas** **COC ID:** **16454**

Relinquished By: _____ Date/Time: _____

Received By: CERET G Date/Time: 7/8/21 1110

Cooler ID(s): _____ Temperature(s): _____

ALS Environmental

Cooler Receipt Form

Project Chemist CG

Client/Project ALS-H

Thermometer ID 1831

Date/Time Received: 7/8/21 Initials: CG Date/Time Logged in: 7/8/21 Initials CG

1. Method of delivery: ○ US Mail ○ Fed Ex ○ UPS ○ DHL ✓ ALS Courier ○ Client
2. Samples received in: ✓ Cooler ○ Box ○ Envelope ○ Other
3. Were custody seals on coolers? ○ Yes ✓ No
   Were they intact? ○ Yes ○ No ✓ N/A
   Were they signed and dated? ○ Yes ○ No ✓ N/A
   If yes, how many and where?
4. Packing Material: ○ Inserts ✓ Baggies ○ Bubble Wrap ○ Gel Packs ✓ Wet Ice ○ Sleeves ○ Other
5. Foreign or Regulated Soil? ○ Yes ✓ No Location of Sampling:

Cooler Tracking Number	COC ID	Date Opened	Time Opened	Opened By	Temp. °C	Temp Blank?
NA		7/8/21	1110	CG	3.5	X
						☐
						☐
						☐

6. Were custody papers properly filled out (ink, signed, dated, etc)? ✓ Yes ○ No
7. Did all bottles arrive in good condition (not broken, no signs of leakage)? ✓ Yes ○ No
8. Were all sample labels complete (i.e., sample ID, analysis, preservation, etc)? ✓ Yes ○ No
9. Were appropriate bottles/containers and volumes received for the requested tests? ✓ Yes ○ No
10. Did sample labels and tags agree with custody documents? ✓ Yes ○ No

Notes, Discrepancies, & Resolutions:

Service request Label:

10450 Stancliff Rd., Suite 210
Houston, TX 77099
T: +1 713 266 1599
F: +1 713 266 1599
www.alsglobal.com

SAMPLE ACCEPTANCE POLICY

This policy outlines the criteria samples must meet to be accepted by ALS Environmental – Houston HRMS.

Cooler Custody Seals (desirable, mandatory if specified in SAP):

- ✓ Intact on outside of cooler, signed and dated

Chain-of-Custody (COC) documentation (mandatory):

The following is required on each COC:

- ✓ Sample ID, the location, date and time of collection, collector's name, preservation type, sample type, and any other special remarks concerning the sampleThe COC must be completed in ink.
- ✓ Signature and date of relinquishing party.

In the absence of a COC at sample receipt, the COC will be requested from the client.

Sample Integrity (mandatory):

Samples are inspected upon arrival to ensure that sample integrity was not compromised during transfer to the laboratory.

- ✓ Sample containers must arrive in good condition (not broken or leaking).
- ✓ Samples must be labeled appropriately, including Sample IDs, and requested test using durable labels and indelible ink.
- ✓ The correct type of sample bottle must be used for the method requested.
- ✓ An appropriate sample volume, or weight, must be received.
- ✓ Sample IDs and number of containers must reconcile with the COC.
- ✓ Samples must be received within the method defined holding time.

Temperature Requirement (varies by sample matrix):

- ✓ Aqueous and Non-aqueous samples must be shipped and stored cold, at 0 to 6ºC.
- ✓ Tissue samples must be shipped and stored frozen, at -20 to -10ºC.
- ✓ Air samples are shipped and stored cold, at 0 to 6ºC
- ✓ The sample temperature must be recorded on the COC

All cooler inspections are documented on the Cooler Receipt Form (CRF). A separate CRF is completed for each service request. Any samples not meeting the above criteria are noted on the CRF and the Project Manager notified. The Project Manager must resolve any sample integrity issues with the client prior to proceeding with the analysis. Such resolutions are documented in writing and filed with the project folder. Data associated with samples received outside of this acceptance policy will be qualified on the case narrative of the final report

Preparation Information Benchsheets

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

Preparation Information Benchsheet

Prep Run#: 383029 **Prep WorkFlow:** GenExt28Day **Status:** Prepped
Team: Semivoa GCMS/GRIVERA **Prep Method:** Method **Prep Date/Time:** 7/13/21 13:00

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E2100762-001	LH18/24-SP650_070721_BIX	.01	6850/ClO4 DOD			Water	10mL	
2	E2100763-001	LH18/24-SP650_070721_BIX	.01	6850/ClO4 DOD			Water	10mL	
3	E2100764-001	LH18/24-SP140_070721	.01	6850/ClO4 DOD			Water	10mL	
4	E2100765-001	HBW7_070621	.01	6850/ClO4 DOD			Ground Water	10mL	
5	E2100765-002	HBW10_070621	.01	6850/ClO4 DOD			Ground Water	10mL	
6	E2100765-003	HBW1_070621	.01	6850/ClO4 DOD			Ground Water	10mL	
7	E2100765-004	HBW1_070621_a	.01	6850/ClO4 DOD			Ground Water	10mL	
8	E2100765-005	GPW1_070621	.01	6850/ClO4 DOD			Ground Water	10mL	
9	E2100765-006	GPW3_070621	.01	6850/ClO4 DOD			Ground Water	10mL	
10	E2100777-001	50WW08-210707	.01	6850/ClO4 DOD			Water	10mL	
11	E2100777-002	50WW05-210707	.01	6850/ClO4 DOD			Water	10mL	
12	E2100777-003	50WW29-210707	.01	6850/ClO4 DOD			Water	10mL	
13	E2100777-004	50WW14-210708	.01	6850/ClO4 DOD			Water	10mL	
14	E2100777-005	50WW13-210708	.01	6850/ClO4 DOD			Water	10mL	
15	E2100777-006	50WW11-210708	.01	6850/ClO4 DOD			Water	10mL	
16	E2100777-007	50WW11-210708-FD	.01	6850/ClO4 DOD			Water	10mL	
17	E2100777-008	50WW06-210708	.01	6850/ClO4 DOD			Water	10mL	
18	E2100777-009	50WW12-210708	.01	6850/ClO4 DOD			Water	10mL	
19	EQ2100430-01	MB		6850/ClO4 DOD			Liquid	10mL	
20	EQ2100430-02	LCS		6850/ClO4 DOD			Liquid	10mL	
21	EQ2100430-03	DLCS		6850/ClO4 DOD			Liquid	10mL	
22	EQ2100430-04	50WW06-210708 MS	.01	6850/ClO4 DOD			Liquid	10mL	
23	EQ2100430-05	50WW06-210708 DMS	.01	6850/ClO4 DOD			Liquid	10mL	

Spiking Solutions

Name: Sodium Perchlorate 1 ug/mL (IS) (18-O) as CLO4 Inventory ID 214765 Logbook Ref: Sodium Perchlorate Expires On: 12/11/2022

E2100762-001	100.00µL	E2100765-001	100.00µL	E2100765-002	100.00µL	E2100765-003	100.00µL	E2100765-004	100.00µL	E2100765-005	100.00µL
E2100765-006	100.00µL	EQ2100430-01	100.00µL	EQ2100430-02	100.00µL	EQ2100430-03	100.00µL	EQ2100430-04	100.00µL	EQ2100430-05	100.00µL

Name: Perchlorate Intermediate Stock1 Inventory ID 217422 Logbook Ref: Perchlorate Expires On: 11/26/2021

EQ2100430-02	1.00µL	EQ2100430-03	1.00µL	EQ2100430-04	1.00µL	EQ2100430-05	1.00µL

Preparation Information Benchsheet

Prep Run#: 383029 **Prep WorkFlow:** GenExt28Day **Status:** Prepped
Team: Semivoa GCMS/GRIVERA **Prep Method:** Method **Prep Date/Time:** 7/13/21 13:00

Preparation Steps

Step: Preparation
Started: 7/13/21 13:00
Finished: 7/13/21 13:30
By: GRIVERA
Comments

Comments: _____

Reviewed By: GR Date: 7/13/21

Chain of Custody

Relinquished By: _____ Date: _____ Extracts Examined

Received By: _____ Date: _____ Yes No

Analytical Results

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100765
Project:	HS21070328	**Date Collected:**	7/ 6/21 1008
Sample Matrix:	Ground Water	**Date Received:**	7/ 8/21
Sample Name:	HBW7_070621	**Units:**	µg/L
Lab Code:	E2100765-001	**Basis:**	As Received

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**0.348**		0.100	0.0500	0.0250	1	7/13/21	7/15/21 13:53	383029	731254	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100765
Project:	HS21070328	**Date Collected:**	7/ 6/21 1023
Sample Matrix:	Ground Water	**Date Received:**	7/ 8/21
Sample Name:	HBW10_070621	**Units:**	µg/L
Lab Code:	E2100765-002	**Basis:**	As Received

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**0.207**		0.100	0.0500	0.0250	1	7/13/21	7/15/21 14:02	383029	731254	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100765
Project:	HS21070328	**Date Collected:**	7/ 6/21 1035
Sample Matrix:	Ground Water	**Date Received:**	7/ 8/21
Sample Name:	HBW1_070621	**Units:**	µg/L
Lab Code:	E2100765-003	**Basis:**	As Received

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**0.369**		0.100	0.0500	0.0250	1	7/13/21	7/15/21 14:11	383029	731254	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100765
Project:	HS21070328	**Date Collected:**	7/ 6/21 1035
Sample Matrix:	Ground Water	**Date Received:**	7/ 8/21
Sample Name:	HBW1_070621_a	**Units:**	µg/L
Lab Code:	E2100765-004	**Basis:**	As Received

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**0.295**		0.100	0.0500	0.0250	1	7/13/21	7/15/21 14:19	383029	731254	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100765
Project:	HS21070328	**Date Collected:**	7/ 6/21 1058
Sample Matrix:	Ground Water	**Date Received:**	7/ 8/21
Sample Name:	GPW1_070621	**Units:**	µg/L
Lab Code:	E2100765-005	**Basis:**	As Received

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**0.154**		0.100	0.0500	0.0250	1	7/13/21	7/14/21 23:30	383029	731262	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100765
Project:	HS21070328	**Date Collected:**	7/ 6/21 1109
Sample Matrix:	Ground Water	**Date Received:**	7/ 8/21
Sample Name:	GPW3_070621	**Units:**	µg/L
Lab Code:	E2100765-006	**Basis:**	As Received

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**0.122**		0.100	0.0500	0.0250	1	7/13/21	7/14/21 23:39	383029	731262	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100765
Project:	HS21070328	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	EQ2100430-01	**Basis:**	As Received

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	ND	U	0.100	0.0500	0.0250	1	7/13/21	7/13/21 12:28	383029	730861	

Accuracy & Precision

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS21070328
Sample Matrix: Ground Water

Service Request: E2100765
Date Analyzed: 7/13/21

Lab Control Sample Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Units: µg/L
Basis: As Received

Extraction Lot: 383029

	Lab Control Sample EQ2100430-02			Duplicate Lab Control Sample EQ2100430-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	0.119	0.100	119	0.0977	0.100	98	84 - 119	19 *	15

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100765
Project:	HS21070328	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2100430-02	**Basis:**	As Received

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**0.119**		0.100	0.0500	0.0250	1	7/13/21	7/13/21 14:08	383029	730861	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100765
Project:	HS21070328	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2100430-03	**Basis:**	As Received

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**0.0977**	J	0.100	0.0500	0.0250	1	7/13/21	7/13/21 14:16	383029	730861	

DEPARTMENT OF THE ARMY
LONGHORN ARMY AMMUNITION PLANT
POST OFFICE BOX 220
RATCLIFF, AR 72951

January 25, 2022

DAIN-ODB-LO

Mr. Brian Follin
U.S. Environmental Protection Agency
1201 Elm Street, Suite 500
Dallas, TX 75270-2002

Re: Draft Final Year 7 Annual Remedial Action Operation Report (September 2020 - August 2021), LHAAP-35A (58) Shops Area, Longhorn Army Ammunition Plant, Karnack, Texas, January 2022

Dear Mr. Follin,

An electronic copy of the above referenced document has been added to the project portal's "Documents" folder for your review. An electronic copy of this letter and download instructions for the electronic file have been sent via email. The document includes revisions based upon the Texas Commission on Environmental Quality (TCEQ) comments on the Draft version received December 17, 2020, and the Environmental Protection Agency's (EPA) comments on the Draft version received on December 20, 2020. A response to the TCEQ and EPA comments on the Draft version of the document is included with this Draft Final. In accordance with the FFA, the Draft Final will be considered Final after 30 days without further comment.

The document was prepared by the Bhate Environmental Associates, Inc., (Bhate) team, on behalf of the Army as part of Bhate's Performance Based Remediation contract for the facility. I ask that Kim Nemmers, Bhate's Project Manager, be copied on any communications related to the project.

The point of contact for this action is the undersigned. I may be contacted at 479-635-0110, or by email at rose.m.zeiler.ctr@army.mil.

Sincerely,

Rose M. Zeiler, Ph.D.
Longhorn AAP Site Manager

Electronic Copies furnished:
A. Palmie, TCEQ, Austin, TX
P. Bruckwicki, USFWS, Caddo Lake NWR, TX (1 hard copy and 1 CD)
C. Montoya USACE, Tulsa District, OK
A. Williams, USACE, Tulsa District, OK
A. Nieves USAEC, San Antonio, TX
L. Sierocinski, USAEC, San Antonio, TX
K. Nemmers, Bhate, Lakewood, CO

DEPARTMENT OF THE ARMY
LONGHORN ARMY AMMUNITION PLANT
POST OFFICE BOX 220
RATCLIFF, AR 72951

January 25, 2022

DAIN-ODB-LO

Ms. April Palmie
Texas Commission on Environmental Quality
Superfund Section, MC-136
12100 Park 35 Circle, Bldg D
Austin, TX 78753

Re: Draft Final Year 7 Annual Remedial Action Operation Report (September 2020 - August 2021), LHAAP-35A (58) Shops Area, Longhorn Army Ammunition Plant, Karnack, Texas, January 2022

Dear Ms. Palmie,

An electronic copy of the above referenced document has been added to the project portal's "Documents" folder for your review. An electronic copy of this letter and download instructions for the electronic file have been sent via email. The document includes revisions based upon the Texas Commission on Environmental Quality (TCEQ) comments on the Draft version received December 17, 2020, and the Environmental Protection Agency's (EPA) comments on the Draft version received on December 20, 2020. A response to the TCEQ and EPA comments on the Draft version of the document is included with this Draft Final. In accordance with the FFA, the Draft Final will be considered Final after 30 days without further comment.

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The point of contact for this action is the undersigned. I may be contacted at 479-635-0110, or by email at rose.m.zeiler.ctr@army.mil.

Sincerely,

Rose M. Zeiler, Ph.D.
Longhorn AAP Site Manager

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K. Nemmers, Bhate, Lakewood, CO

Responses to Comments on
Draft 7th Annual Remedial Action Operations (September 2020 – August 2021) at LHAAP-35A(58), Shops Area
Longhorn Ammunition Plant, Karnack, Texas
29 October 2021

1. Respondent Concurs (C), Does Not Concur (D), Takes Exception (E), or Delete (X).
2. Commenter Agrees (A) with response or Does not Agree (D) with response.

Comment #	Section/ Paragraph	Comment (December 20, 2021)	C, D, E or X[1]	Response (January 25, 2022)	A or D[2]	Comment	C, D, E or X[1]	Response	A or D[2]
				Reviewer: Brian Follin, USEPA Region 6 **Respondent:** Kim Nemmers, Bhate					
1	Section 1.4	It would be best to keep groundwater level measurements in the same units for comparison. The authors use “bgs” and “amsl.” Also, would change “groundwater surface measurements” to “groundwater level measurements” to avoid confusion with other surface water measurements. Continued arsenic monitoring is recommended for 03WW01, 35AWW08, and 35AWW09 in eastern plume but mention other wells where concentrations were above MCL (03WW01, 1004TW001, 1004TW006, 35AWW08, 35AWW20, and LHSMW07). 1004TW001 and 1004TW006 were later designated in figure 6 as removed from the RAO which seems odd if arsenic concentrations were above MCL.	C, E	Note that the document uses feet (ft) below ground surface (bgs) to describe depths, while groundwater elevations (with a surveyed measuring point) are referred to as feet above mean sea level (amsl). Where a surveyed measuring point is available, the elevation will be added to the text to reduce confusion. The second to last paragraph on Page 1-5 will be revised to state: “*Based on groundwater level measurements…*”. Note that the conceptual model (Section 1.4) is discussing the historic arsenic detections and previous recommendations. Additional text will be added in regards to historic arsenic sampling, detections, and monitoirng recommendations.					
2	Section 2.2.1	Section title indicates Eastern Plume Monitoring but lists wells in both eastern and western plume. Six wells were also mentioned in the subsequent section entitled “western plume monitoring.” Would be better to take out 6 wells listed in western plume monitoring from the list in the eastern plume monitoring. Several shallow monitoring sites are shown on figure 2 that are not listed in this section for sampling (35AWW04, 1004TW006, 1004TW001, LHSMW03, LHSMW04, LHSMW05, 35AWW03, 35AWW07, 35AWW07R). LHSMW04 is addressed later as being dry. I am guessing this map shows any existing wells in the area that may have been sampled in the past. To clarify things, I would either have the map just show wells sampled in Year 7 or make a halo around the wells that are pertinent exclusively to Year 7 sampling. Figure 6 does show that 35AWW04, 1004TW006, 1004TW001, LHSMW03, 35AWW03, 35AWW07R were removed from RAO but no mention of this in text. LHSMW05 and 35AWW07 do not seem to be shown on figure 6.	C	Concur. Although there are 6 wells sampled for both the eastern and western plume monitoring, the 6 wells included in the western plume monitoring program will be removed from Section 2.2.1 Easter Plume Monitoring. Figure 2 will be revised to highlight the wells sampled during the Year 7 RA(O) sampling. Figure 6 already displays LHSMW05 and 35AWW07R. Monitoring well 35AWW07R is a replacement well for 35AWW07. No additional revisions to Figure 6 are required.					
3	Section 2.3.1	2nd paragraph indicates 23 wells sampled for COCs but 21 wells were indicated in the shallow zone in section 2.2.1 Are the 23 wells both the shallow and intermediate? Would keep at 21 wells since section is just for shallow wells and next section talks about the 2 intermediate wells.	C	Concur. The text will be revised as requested.					

Responses to Comments on
Draft 7th Annual Remedial Action Operations (September 2020 – August 2021) at LHAAP-35A(58), Shops Area
Longhorn Ammunition Plant, Karnack, Texas
29 October 2021

1. Respondent Concurs (C), Does Not Concur (D), Takes Exception (E), or Delete (X).
2. Commenter Agrees (A) with response or Does not Agree (D) with response.

4	Section 2.3.3	03WW01, 35AWW01, 35AWW08, and LHSMW06 were sampled in Dec 2020 for arsenic and 03WW01, 35AWW01, 35AWW08, 35AWW09, 35AWW20, and LHSMW06 were sampled in June 2021 for arsenic. Is there a reason why the same wells were not sampled for arsenic in both sampling times? Wondering why wells 35AWW01 and LHSMW06 were sampled for arsenic since they were not mentioned in section 1.4 as locations of concern for arsenic.	C	Concur. Based on recommendations presented in the 4th Annual RA(O) Report arsenic monitoring is completed in the eastern plume monitoring wells 03WW01, 35AWW08, and 35AWW09 and in the western plume monitoring wells 35AWW20 and LHSMW06. 03WW01 is included as outlined in the ESD for LHAAP-03 (Bhate/APTIM, July 2018). Monitoring of arsenic at 35AWW01 is included as this well is an intermediate groundwater well evaluated for MNA. Additional background information will be added to Section 1.4. Additionally, the first paragraph of Section 2.3.3 will be revised to state: "*During the Year 7 RA(O) monitoring period, arsenic analysis was completed in select monitoring wells in accordance with the Revised Technical Memorandum, Steps to Remedy-in-Place for LHAAP-03/LHAAP-58 (AECOM, November 2012); the ESD for LHAAP-03 groundwater and LUCs (Bhate/APTIM, July 2018); the 2013 RAWP (AECOM, August 2013); and the 4th Annual RA (O) Report (Bhate/APTIM, October 2018). The 4th Annual RA (O) Report recommended continued arsenic monitoring in eastern plume monitoring wells 03WW01, 35AWW08, and 35AWW09 and western plume monitoring wells 35AWW20 and LHSMW06. 03WW01 is included as outlined in the ESD for LHAAP-03 (Bhate/APTIM, July 2018). In December 2020, groundwater from the following monitoring wells was analyzed for arsenic: 03WW01, 35AWW01, 35AWW08, and LHSMW06. Arsenic monitoring was erroneously omitted at 35AWW09 and 35AWW20 in December 2020. In June 2021, groundwater from the six monitoring wells was analyzed for arsenic: 03WW01, 35AWW01, 35AWW08, 35AWW09, 35AWW20, and LHSMW06. Monitoring of arsenic at 35AWW01 is included as this well is an intermediate groundwater well evaluated for MNA.*"					
5	Section 2.5	Figure 6 indicates 35AWW04, 1004TW006, 1004TW001, LHSMW03, 35AWW03, 35AWW07R were removed from RAO but only 35AWW02, 35AWW03, 1004TW0001, and 1004TW0006 are listed as being removed from monitoring.	C	Concur. Since Section 2.5 is discussing abandonment and not removal of wells from monitoring, Section 2.5 will be revised to state: "*No additional wells are recommended for abandonment beyond those previously recommended in the Year 2 RA(O) Report (AECOM, May 2016), which included 35AWW02, 35AWW03, and 1004TW0001.*"					

Responses to Comments on
Draft 7th Annual Remedial Action Operations (September 2020 – August 2021) at LHAAP-35A(58), Shops Area
Longhorn Ammunition Plant, Karnack, Texas
29 October 2021

1. Respondent Concurs (C), Does Not Concur (D), Takes Exception (E), or Delete (X).
2. Commenter Agrees (A) with response or Does not Agree (D) with response.

6	Section 3	To clarify… did EISB injections take place in the eastern plume in 2013, but EISB injections took place in the western plume in 2018? Why wasn't 35AWW14 included in quarterly monitoring events if it is listed as a well near injection site when other wells near the injection site were included?	C	EISB injections were conducted near 35AWW14 in 2018. However, as described in the Revised Final Remedial Action Work Plan Contingency Remedy for Western Plume (Bhate, January 2018), 35AWW14 was outside of the EISB target area and not included in the performance monitoring. Therefore, the first two sentences of the second paragraph of Section 3 will be revised for clarity to state: "*The EISB target area within the western groundwater plume is located within the vicinity of wells 35AWW06, 35AWW20, and LHSMW07 (Bhate, January 2018). EISB injections were also implemented near monitoring wells 35AWW11, 35AWW14, and 35AWW23.*"					
7	Section 3.1.1	"The current low concentrations of PCE and TCE are likely responsible for the corresponding low concentrations of cis-1,2-DCE and VC generated as degradation daughter products."—This statement is somewhat confusing, but I think what the authors are trying to say is that daughter product concentrations are relatively low simply because there is a limited quantity of parent compounds to act as source material. This may be a bit of an oversimplification because there may be any number of factors contributing to the low concentrations of daughter products, but the statement could also use some rewording to improve clarity.	C	The last sentence of Section 3.1.1 will be revised to state: "*In part, the low concentrations of degradation daughter products cis-1,2-DCE and VC present during the reporting period are a result of the minimal amount of parent compounds remaining at the site.*"					
8	Section 5	I think it is interesting that what was previously considered to be 2 plumes now looks like 3 hot spots (with declining concentrations). Also agree to the importance of sampling downgradient at 35AWW04 or drilling a new well if 35AWW04 is dry in order to monitor downgradient extent. For clarification in table 7, I would indicate semiannual sampling in Year 7 was for both the eastern and western plumes and indicate what was sampled in the eastern plume during Year 6.	C	Concur. The headers of Table 7 will be revised as requested.					
		END of USEPA Comments							

Responses to Comments on
Draft 7th Annual Remedial Action Operations (September 2020 – August 2021) at LHAAP-35A(58), Shops Area
Longhorn Ammunition Plant, Karnack, Texas
29 October 2021

1. Respondent Concurs (C), Does Not Concur (D), Takes Exception (E), or Delete (X).
2. Commenter Agrees (A) with response or Does not Agree (D) with response.

Comment #	Section/ Paragraph	Comment (December 17, 2021)	C, D, E or X[1]	Response (January 25, 2022)	A or D[2]	Comment	C, D, E or X[1]	Response	A or D[2]
Reviewer: April Palmie, TCEQ **Respondent:** Kim Nemmers, Bhate									
1	Tables	In future reports, please change display of the current analytical data so that each page includes about 20-25% fewer rows and columns for improved readability.	C	Concur. In future reports, the analytical data tables will be printed at a larger scale to improve readability.					
2	Figure 9	Please split Figure 9 into two figures if you want to compare past and present. Alternatively, you could remove the historic plume extent. That figure was helpful but isn't necessary every year. For next year, please have the current plume extent as a full-page figure. My preference is plume extent and concentrations on the same figures but, with the current display style, that would be very cluttered.	C	Concur. In future reports, Figure 9 will be split into two figures with one showing the historical plume extents and one figure showing the current reporting period plume extents.					
3	Figures/ General	General figure note - We have many figure styles in the RAOs and other reports from current Army contractors. Personally, I find this style is the least user-friendly. Between the background image (which adds little value), the layout of the title blocks and legend, and the relative size of the text within the figure, these figures really don't display well. For perspective, I use two 24-inch monitors. Please consider modifying the style.	C, E	In future reports 8.5 x 11 figures will be generated with larger font sizes for readability. However, it is recommended that the background aerial image is retained as it provides important information.					
		END of TCEQ Comments							

DRAFT FINAL
YEAR 7 ANNUAL REMEDIAL ACTION OPERATION REPORT (SEPTEMBER 2020 - AUGUST 2021)
LHAAP-35A (58) SHOPS AREA
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

January 2022

Prepared For:

U.S. Army Corps of Engineers
Tulsa District
1645 S 101 E Avenue
Tulsa, Oklahoma 74128-4609

Contract No: W9128F-13-D-0012
Delivery Order No: W912BV17F0150
Bhate Project No.: NWO1312.0150.012.0001.03

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YEAR 7 ANNUAL REMEDIAL ACTION OPERATION REPORT (SEPTEMBER 2020-AUGUST 2021) LHAAP-35A (58) SHOPS AREA LONGHORN ARMY AMMUNITION PLANT KARNACK, TEXAS

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ACRONYMS AND ABBREVIATIONS

<	Less than
>	Greater than
%	Percent
AECOM	AECOM Technical Services, Inc.
amsl	Above mean sea level
APTIM	APTIM Federal Services, LLC
bgs	Below ground surface
Bhate	Bhate Environmental Associates, Inc.
COC(s)	Contaminant(s) of concern
CSM	Conceptual site model
DCA	Dichloroethane
DCE	Dichloroethene
DHBt	Dehalobacter
DHC	Dehalococcoides
DO	Dissolved oxygen
EISB	Enhanced In-situ Bioremediation
ESD	Explanation of Significant Differences
ft	Feet (or foot)
HPLC	High Performance Liquid Chromatography
IWWP	Installation-Wide Work Plan
J	Data qualifier denoting an estimated concentration
LHAAP	Longhorn Army Ammunition Plant
LUC(s)	Land Use Control(s)
MC	Methylene chloride
MCL(s)	Maximum contaminant level(s)
µg/L	Micrograms per liter
mg/L	Milligrams per liter
mL	Milliliter

MNA	Monitored Natural Attenuation
MSC	Medium-specific concentration
mV	Millivolts
No.	Number
ORP	Oxidation-reduction potential
PCE	Tetrachloroethene
PCBs	Polychlorinated biphenyls
pH	Potential of hydrogen
RA(O)(s)	Remedial Action Operation(s)
RAO(s)	Remedial Action Objective(s)
RACR	Remedial Action Completion Report
RAWP	Remedial Action Work Plan
RD	Remedial Design
ROD	Record of Decision
s.u.	Standard units
Shaw	Shaw Environmental, Inc.
SVOC(s)	Semi-volatile Organic Compound(s)
TCA	Trichloroethane
TCE	Trichloroethene
TM	Technical Memorandum
TOC	Total Organic Carbon
U.S.	United States
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
VC	Vinyl chloride
VFA	Volatile Fatty Acids
VOC(s)	Volatile Organic Compound(s)

1 INTRODUCTION

The United States (U.S.) Army Corps of Engineers (USACE), Tulsa District, contracted Bhate Environmental Associates, Inc. (Bhate), to perform remedial actions at multiple sites at the former Longhorn Army Ammunition Plant (LHAAP) in Karnack, Texas, under the Huntsville District's Architect-Engineer Indefinite Delivery Contract Number (No.) W9128F-13-D-0012, Delivery Order No. W912BV17F0150. Bhate is performing groundwater and surface water monitoring as part of Remedial Action Operation (RA[O]) for the Enhanced In-situ Bioremediation (EISB) and Monitored Natural Attenuation (MNA) groundwater remedy at LHAAP-35A (58). Remedial activities are required under the Record of Decision (ROD) issued for LHAAP-35A (58) in September 2010 (Shaw Environmental, Inc. [Shaw], September 2010).

The Remedial Action Work Plan (RAWP) for the entire site was prepared in August 2013 in accordance with the ROD and was implemented in September 2013 (AECOM Technical Services, Inc. [AECOM], August 2013). Within the eastern plume, EISB was performed in September 2013. The MNA remedy for the western plume at this site, as presented in the ROD, calls for an evaluation of the remedy after 2 years of implementation. The ROD also provides for implementation of a contingency remedy to enhance MNA if it is found to be ineffective. RA(O) implementation for the western plume was conducted between October 2013 and October 2015 and the Year 2 RA(O) report was finalized in May 2016 (AECOM, May 2016). After 2 years of MNA, the Year 2 RA(O) report concluded that MNA was ineffective and implementation of a contingency remedy was appropriate. A RAWP for the contingency remedy for the western plume was developed and finalized (Bhate, January 2018). The contingency remedy for the western plume is EISB injections, which was implemented in March and April 2018, as documented in the Remedial Action Completion Report (RACR) (Bhate, August 2018).

Groundwater monitoring at LHAAP-35A (58) was conducted quarterly following EISB injections at the eastern plume for 2 years but is now semi-annual. The contingency remedy within the western plume required that quarterly sampling be completed in select performance monitoring wells for 2 years which was completed in March 2020. Therefore, as with the eastern plume, groundwater monitoring is now completed semi-annually in the western plume. This RA(O) report documents Year 7 of RA(O) implementation and summarizes the Land Use Control (LUC) compliance inspection; monitoring well inspection, maintenance, and repair activities; results of groundwater and surface water sampling completed in December 2020 and June 2021; and an evaluation of EISB and MNA based on those two sampling events.

LHAAP is located in east-central Texas in the northeastern corner of Harrison County between State Highway 43 in Karnack, Texas, and the western shore of Caddo Lake (**Figure 1**). The nearest cities are Marshall, Texas, approximately 14 miles to the southwest, and Shreveport, Louisiana, approximately 40 miles to the east. Caddo Lake is a large freshwater lake that bounds LHAAP to the north and east. The eastern fence of the LHAAP installation is 3.5 miles from the Texas-Louisiana border (AECOM, May 2016).

1.1 Remedial Action Objectives

The Remedial Action Objectives (RAOs) for LHAAP-35A (58), consistent with the reasonably anticipated future use of the site as a national wildlife refuge, as presented in the ROD (Shaw, September 2010) are:

- Protection of human health by preventing human exposure to the contaminated groundwater;
- Protection of human health and the environment by preventing contaminated groundwater from migrating into nearby surface water; and,
- Returning groundwater to its potential beneficial use as a drinking water source, wherever practicable.

An Explanation of Significant Differences (ESD) was prepared and finalized for LHAAP-35A (58), Shops Area, Group 4 (Bhate/APTIM Federal Services, LLC [APTIM], July 2018) to formalize that the LUCs and groundwater monitoring required for LHAAP-03, a small site entirely contained in the LHAAP-35A (58) eastern Volatile Organic Compound (VOC) plume and LUC boundaries, will be captured under LHAAP-35A (58). The 2018 ESD (Bhate/APTIM, July 2018) specified that well 03WW01 be sampled for arsenic within the LHAAP-35A (58) RA(O) and clarifies that LUCs will remain in place until the levels of the contaminants of concern (COCs) in soil and groundwater allow for unrestricted use and unlimited exposure.

1.2 Performance Objectives

The LHAAP-35A (58) site has groundwater plumes in two distinct areas: 1) eastern plume and 2) western plume. The current remedies selected for the two areas are: LUC; EISB in the area of highest levels of contamination; and MNA for the remainder of the plume, beyond the influence of the EISB treatment area. EISB was implemented as a contingency remedy within the western plume in 2018 as presented in the Final ESD ROD (Bhate, March 2018) and documented in the RACR for the Western Plume Contingency Remedy at LHAAP-35A (58) Shops Area (Bhate, August 2018). EISB was previously conducted in the eastern plume in 2013.

The performance objectives at LHAAP-35A (58) consist of two components: physical inspections and groundwater/surface water monitoring. As a component of the LUC implementation, a civil survey of the LUC boundary was conducted in November 2014 and recorded in the Harrison County Courthouse in March 2015 (AECOM, May 2016). Physical inspections are conducted annually to confirm compliance with the LUC objectives. These objectives include preventing human exposure to groundwater contamination at levels that pose an unacceptable risk to a future maintenance worker and ensuring that there is no withdrawal or use of groundwater from the site for anything other than environmental monitoring and testing until the cleanup levels (maximum contaminant levels [MCLs]) are attained. Groundwater monitoring conducted at the site since October 2013 was included in the facility-wide fourth Longhorn Five-Year Review Report, completed in 2019 (USACE, June 2019).

Groundwater and surface water monitoring is being performed to demonstrate that EISB in conjunction with MNA of the eastern and western plumes are effective remedies to:

- Detect changes in environmental conditions that may reduce the efficacy of the remedial processes,
- Identify potentially toxic and/or mobile transformation products,
- Verify that the plumes are not expanding,
- Verify that no unacceptable impacts to downgradient receptors are occurring, such as discharges of contaminated groundwater to surface water,
- Detect new releases of contaminants to the environment that could impact the effectiveness of the remedies, and
- Verify attainment of the RAOs.

Groundwater monitoring completed as part of the Year 7 RA(O) activities consisted of two semi-annual groundwater sampling events, one conducted in December 2020 and one conducted in June 2021 as specified in the Eastern Plume RAWP (AECOM, August 2013) and the Western Plume RAWP (Bhate, January 2018). Semi-annual surface water sampling at 35ASW03, located adjacent to the western groundwater plume in a ditch that runs parallel to 4th Street, was not performed in December 2020, as groundwater elevations were below the elevation of the ditch. However, semi-annual surface water sampling at 35ASW03 was performed in June 2021 as discussed in **Section 2.4**.

1.3 Site Description

The LHAAP-35A (58) site, also known as the Shops Area, is located in the north-central portion of LHAAP and currently covers an area of approximately 11 acres (**Figure 1**) (Shaw, September 2010). The surface features include asphalt-paved roads, a parking area, and areas that are wooded and overgrown with grasses and other vegetation (**Figure 2**). The topography is relatively flat with the surface drainage flowing into the tributaries of Goose Prairie Creek, which eventually discharges into Caddo Lake.

The Shops Area was established in 1942 as part of the installation's initial construction (Shaw, September 2011). The facility was used to provide plant-operated laundry, automotive, woodworking, metalworking, painting, refrigeration, and electrical services. The site was active throughout the LHAAP's mission and was deactivated along with the rest of the installation in 1996-1997. The LHAAP-35A (58) site boundary has changed over the years. Earlier investigations for LHAAP-35A (58) were performed in areas to the south that are no longer included within the site boundary (AECOM, May 2016).

The following sites were located within the historical LHAAP-35A (58) site boundary, but are not included within the current site boundary:

- LHAAP-04, former Pilot Wastewater Treatment Plant;
- LHAAP-56, a vehicle wash rack and oil/water separator, Building 744-A;
- LHAAP-59, Storage Building 725;
- LHAAP-60, Building 411;

- LHAAP-61, Water Treatment Plant; and
- LHAAP-66, 405-L Transformer Yard.

LHAAP-60, Building 411, which is located within the historical site boundary of LHAAP-35A (58) is included within the LUC boundary for LHAAP-04.

The current site boundary for LHAAP-35A (58) encompasses the following sites:

- LHAAP-02, vacuum truck overnight parking;
- LHAAP-03, the Paint Shop Building 722 (waste collection);
- LHAAP-60, Former Storage Building 714;
- LHAAP-68, a mobile storage tank parking area; and
- LHAAP-69, service station with underground storage tanks.

The following sites are located within the LUC boundary (groundwater use restrictions area) for LHAAP-35A (58):

- LHAAP-02, vacuum truck overnight parking;
- LHAAP-03, the Paint Shop Building 722 (waste collection);
- LHAAP-56, a vehicle wash rack and oil/water separator, Building 744-A;
- LHAAP-59, Storage Building 725;
- LHAAP-60, Building 411;
- LHAAP-60, Former Storage Building 714;
- LHAAP-65, Former Building 209 (flammable materials storehouse);
- LHAAP-68, a mobile storage tank parking area; and
- LHAAP-69, service station with underground storage tanks.

1.4 Conceptual Site Model

Much of the following conceptual site model (CSM) information has previously been presented in the 2nd Annual RA(O) Report (January 2015 – October 2015) (AECOM, May 2016). **Figure 3** presents the CSM from the ROD (Shaw, September 2010). Between 1992 and 2008, multiple investigations were conducted in a phased approach to evaluate the nature and extent of contamination at the LHAAP-35A (58) site. The findings from these investigations were that the shallow zone groundwater was impacted with VOCs, while the soil and former sump/waste rack sump areas (LHAAP-56) posed no unacceptable threat to human health or the environment (Shaw, September 2011). **Figure 2** shows the locations of all the shallow, intermediate, and deep zone monitoring wells, as well as surface water sampling locations, present at the site. The sources of contamination at LHAAP-35A (58) were surface spills associated with the various support services that occurred in the area. The spills resulted in minor soil contamination and

the COCs released to the surface soil subsequently migrated downward through leaching to the groundwater.

Overland flow does not appear to be a complete pathway for migration of contaminants to surface water, as none of the COCs (VOCs, Semi-volatile Organic Compounds [SVOCs], explosives, pesticides, or polychlorinated biphenyls [PCBs]) were detected in water samples from the on-site ditch. Likewise, no VOCs, SVOCs, explosives, or pesticides were detected in samples of the ditch sediment. Some metals were detected in surface water and sediment at concentrations in the naturally occurring background range.

Investigation results indicate that the shallow zone groundwater is impacted with VOCs, but soil and former sump/waste rack areas pose no unacceptable risk to human health or the environment (Shaw, September 2011). The nearest surface water body to LHAAP-35A (58) is a ditch that runs parallel to 4th Street on the western boundary of the site and flows to the southeast. The depth of groundwater in wells adjacent to the ditch is well below the bottom of the ditch at 18 to 25 feet (ft) below ground surface (bgs) (e.g., in wells 35AWW16, 35AWW18, and LHSMW07).

The potentially complete exposure pathways are groundwater use as drinking water and potential migration of impacted groundwater into surface water. Shallow groundwater is not used as drinking water at the refuge and this potential exposure pathway is eliminated from any hypothetical future receptor because LUCs are in place that prohibit the use of groundwater for any purpose other than for environmental monitoring and testing. **Figure 2** shows the groundwater use restrictions area established for this site.

The hydrogeology beneath the site, as presented in the Draft Final RACR (AECOM, October 2015), consists of three water-bearing zones identified as shallow, intermediate, and deep. The shallow zone extends to approximately 40 ft bgs. The lithology of the shallow zone is characterized by discontinuous layers of fine grained soils consisting of interbedded silt, sand, and clay. According to the groundwater gauging data conducted in October 2013 (First Performance Monitoring Sampling Event), groundwater elevations in the shallow zone in October 2013 ranged from 184.21 ft above mean sea level (amsl) to 202.32 ft amsl.

Data from boring log 35AWW02, which was drilled in the deep zone to a depth of 140 ft bgs (75.06 ft amsl), and 35AWW05, which was drilled in the intermediate zone to a depth of 72 ft bgs (147.01 ft amsl), indicate the soils in the intermediate and deep zones consist mostly of clay with the occasional presence of silt and sand layers. The occurrence of predominantly clay soil beneath the shallow zone impedes the vertical migration of groundwater, which is corroborated by the difference in groundwater elevations between the shallow zone and the intermediate and deep zones (AECOM, May 2016). Based on groundwater level measurements obtained in October 2013, groundwater elevation for the intermediate zone was approximately 178 ft above amsl, and the elevation of deep zone groundwater was 175.75 ft above amsl.

Based on previous investigations, the shallow groundwater COCs at LHAAP-35A (58) are tetrachloroethene (PCE); trichloroethene (TCE); 1,1,2-trichloroethane (TCA); 1,1-dichloroethene (DCE); 1,2-dichloroethane (1,2-DCA); cis-1,2-DCE; trans-1,2-DCE; vinyl chloride (VC); methylene

chloride (MC); and benzene. In addition, low concentrations of 1,1-DCA were detected in the shallow zone groundwater, but were below the groundwater medium-specific concentration (MSC); therefore, 1,1-DCA is not considered a groundwater COC at this site. No COCs were detected in samples collected from the intermediate and deep groundwater zones.

Although arsenic has not been designated as a COC, it is included in the shallow zone groundwater monitoring program in accordance with the Revised Technical Memorandum, Steps to Remedy-in-Place for LHAAP-03/LHAAP-58 (AECOM, November 2012); the ESD for LHAAP-03 groundwater and LUCs (Bhate/APTIM, July 2018); and the 2013 RAWP (AECOM, August 2013). Four quarters of arsenic monitoring were completed to be compliant with the Eastern Plume RAWP (AECOM, August 2013). However, per the Year 2 RA(O) Report (AECOM, May 2016), arsenic monitoring was recommended for additional wells located within the eastern plume (03WW01, 35AWW08, and 35AWW09). Continuation of the arsenic sampling program during the period of implementation and monitoring of EISB effectiveness within the western plume was also recommended based upon the recommendation to implement EISB for the western plume.

Arsenic was reported at concentrations above the MCL of 0.010 milligrams per liter (mg/L) during the Year 1 RA(O) monitoring period and during the July 2015 sampling event of the Year 2 RA(O) monitoring period in wells 03WW01, 1004TW001, 1004TW006, 35AWW08, 35AWW20, and LHSMW07 (AECOM, May 2016). Background concentrations of arsenic at Site LHAAP-58 were reported up to 0.0621 mg/L in November 2008 for perimeter well 110 in a filtered sample that was collected on December 16, 2004 (Shaw, June 2007).

In November 2017, monitoring wells 35AWW08 (0.148 mg/L) and 03WW01 (0.035 mg/L) exceeded the MCL of 0.010 mg/L. The eight other monitoring wells sampled did not have arsenic detected in the groundwater above the MCL. In July 2018, monitoring well 03WW01 was not analyzed for arsenic. The detected arsenic in July 2018 at monitoring well 35AWW08 decreased to 0.122 mg/L. Arsenic concentrations detected in samples below the MCL in November 2017 ranged from nondetect in monitoring wells LHSMW06 (shallow monitoring well) and 35AWW01 (intermediate monitoring well) and 0.000850 J mg/L in monitoring well 1004TW001 (recommended for removal from monitoring program in Year 3 RA(O) Report). The arsenic detections below the MCL in July 2018 ranged from 0.000648 J mg/L in intermediate monitoring well 35AWW01 to 0.00198 J mg/L in shallow monitoring well 35AWW09.

As presented in Section 1.1, sampling at well 03WW01 will continue to be conducted per the ESD for LHAAP-35A (58) that requires the groundwater underlying LHAAP-03 be included with the LHAAP-35A (58) groundwater remedy. Based on historic arsenic results and the ESD (Bhate/APTIM, July 2018), the Year 4 RA(O) Report recommended to continue monitoring arsenic in eastern plume monitoring wells 03WW01, 35AWW08, and 35AWW09 and western plume monitoring wells 35AWW20 and LHSMW06.

2 SITE ACTIVITIES AT LHAAP-35A (58)

2.1 Annual LUC Compliance Inspection, Maintenance, and Repairs

2.1.1 Annual LUC Compliance Inspection

The objectives of the LUCs at LHAAP-35A (58) are to prevent human exposure to groundwater contamination presenting an unacceptable risk to human health, and to ensure that there is no withdrawal or use of groundwater beneath the site for any purpose other than environmental monitoring and testing until the cleanup levels are attained (AECOM, August 2013). The ESD for LHAAP-03 groundwater and LUCs formally changed the duration of the LUCs, which will remain in effect until COC concentrations in groundwater and soil are reduced to levels that allow unrestricted use and unlimited exposure (Bhate/APTIM, July 2018).

As shown on **Figure 2**, the sites that are included in the LUC boundary under LHAAP-58 include LHAAP-02, LHAAP-03, LHAAP-35A, LHAAP-56, LHAAP-59, LHAAP-60D, LHAAP-65, LHAAP-68, and LHAAP-69. Notices of the groundwater use restrictions accompany all property transfer documents and were recorded at the Harrison County Courthouse in March 2015 in accordance with the Texas Administrative Code Title 30, §335.566. Additional details regarding the implementation of the LUCs are presented in the RACR (AECOM, October 2015).

The annual LUC compliance inspection was conducted for LHAAP-35A (58) on June 23, 2021. The Annual Land Use Control Compliance Certification Documentation form for the Year 7 RA(O) period is presented in **Appendix A**. No compliance issues or concerns were noted during the June 2021 annual inspection.

2.1.2 Well Field Operation & Maintenance

Inspections of the conditions/integrity of monitoring wells were conducted in June 2021 and were documented in a photographic log (**Appendix B**) and during each sampling event with the information recorded on the field sampling forms. No significant maintenance items were observed during the June 2021 inspection. However, similar to the previous Year 6 inspection, there are hinges on several monitoring wells noted to have rust observed at varying degrees (35AWW10, 35AWW12, 35AWW17, 35AWW19, and 35AWW21). The hinges have not worsened since Year 6. The hinges will continue to be watched to see if they continue to worsen, which will require replacement or repair. Additionally, monitoring well LHSMW06 was noted as needing paint. The painting of LHSMW06 will be completed in the upcoming reporting period. Mowing the area to control brush and weeds was conducted on a routine basis and as needed to allow access to the wells, typically before sampling events. During the Year 7 annual reporting period, mowing was conducted prior to the groundwater sampling events in December 2020 and June 2021. **Appendix B** provides photos of the June 2021 monitoring well conditions and **Appendix C** provides the Well Inspection Forms, which contain information about the individual well surface conditions observed during each of the Year 7 sampling events conducted in December 2020 and June 2021.

2.2 Groundwater Monitoring for RA(O)

Groundwater monitoring at LHAAP-35A (58) was conducted quarterly following EISB injections at the eastern plume for 2 years but is now conducted on semi-annual basis. The contingency remedy implemented within the western plume required that quarterly sampling be conducted at select performance monitoring wells for 2 years, which was completed in March 2020. Therefore, as with the eastern plume, groundwater monitoring is now conducted semi-annually at the western plume. During the Year 7 RA(O), groundwater sampling was completed semi-annually in December 2020 and June 2021.

2.2.1 Eastern Plume Monitoring

In accordance with the RAWP (AECOM, August 2013), the following shallow zone wells located within the eastern and western plumes were sampled in December 2020 and June 2021: 03WW01, 35AWW08, 35AWW09, 35AWW10, 35AWW12, 35AWW13, 35AWW14, 35AWW15, 35AWW16, 35AWW17, 35AWW18, 35AWW21, 35AWW22, 35AWW24, and LHSMW06. Monitoring well LHSMW04 was dry in both December 2020 and June 2021 and therefore was not sampled during the Year 7 RA(O). LHSMW04 was also dry in October 2016, November 2017, July 2018, December 2018, December 2019, and June 2020. Intermediate groundwater zone well 35AWW01 was also sampled in December 2020 and June 2021. Well 35AWW02 (**Figure 2**), which is the only well screened in the deep groundwater zone, was not included in the sampling program, in accordance with the RAWP (AECOM, August 2013). Therefore, this monitoring well was not gauged or sampled during the Year 7 RA(O) sampling events.

2.2.2 Western Plume Monitoring

Six shallow wells located within the western plume were required to be sampled quarterly for 2 years post injection. Per the Western Plume RAWP (Bhate, January 2018), the wells include 35AWW06, 35AWW11, 35AWW19, 35AWW20, 35AWW23, and LHSMW07. The eighth and final quarterly event was completed in March 2020. Therefore, western plume monitoring only is required to be sampled semi-annually during the Year 7 RA(O). Although, not considered performance monitoring wells for the Western Plume RAWP, LHSMW06, 35AWW15, and 35AWW18 which are sampled as part of the eastern plume monitoring, also help define the western plume. Intermediate groundwater zone well 35AWW05 was also sampled in December 2020 and June 2021.

2.2.3 Sampling Procedures and Analysis

Before collecting groundwater samples, the wells were gauged using a water level probe and the depth to water was recorded to the nearest 0.01 ft from the top of casing. During the Year 7 RA(O) period, 23 monitoring wells were gauged for depth to water in December 2020 and June 2021. Groundwater samples were collected using the low-flow sampling technique described in the Groundwater Sampling Procedures in the Installation-Wide Work Plan (IWWP) (Bhate, May 2018). After water quality parameters stabilized and were within acceptable ranges, samples were collected at the same low flow rate.

The MNA analyte list was modified for the Year 7 sampling events to follow the recommendations put forth in the Final Technical Memorandum (TM) - MNA Parameters (Bhate/APTIM, February 2019) (**Appendix D**). The TM modified the MNA analyte list for consistency across several sites and to reduce redundant or non-essential parameters. Analytes eliminated in the Year 7 RA(O) sampling events were alkalinity; nitrite; sulfide; total iron; dissolved iron and manganese; and total phosphorous. Groundwater samples collected from each well during Year 7 (December 2020 and June 2021) were analyzed by ALS Environmental for VOCs (SW8260C). Select wells were also analyzed by ALS Environmental for dissolved gases (RSK-175); Total Organic Carbon (TOC) (SM5310C); total arsenic (SW6020A); chloride, nitrate, and sulfate (SW9056A); Volatile Fatty Acids (VFAs) (High Performance Liquid Chromatography [HPLC]-METACIDS); and/or dechlorinating bacteria (dehalococcoides [DHC]/dehalobacter [DHBt]) (CENSUS). A Hach kit was used to complete ferrous iron screening in the field.

The LHAAP-35A (58) monitoring wells are shown on **Figure 2**. **Table 1** presents the monitoring wells that were gauged during the Year 7 RA(O) period. Each of the monitoring wells were secure and sampled with no technical issues encountered.

During the 7 years of RA(O) sampling, only monitoring well LHSMW04, located to the east of the eastern groundwater plume, has been periodically dry. However, the absence of data from this well has had no effect on evaluating EISB or MNA. Monitoring well LHSMW04 is located between 35AWW09 and 35AWW12 and the sampling results for these two wells provide ample data to evaluate this area.

Groundwater Sample Collection Forms are presented in **Appendix E**. Chain of custody forms, laboratory reports, and quality control summary reports are presented with the laboratory results in **Appendix F**.

2.2.4 Groundwater Elevation and Flow Direction

2.2.4.1 Shallow Groundwater Zone

Groundwater levels for the Year 7 RA(O) were measured in December 2020 and June 2021. The groundwater flow direction in the shallow water bearing unit during the Year 7 RA(O) monitoring period at LHAAP-35A (58) is interpreted to the southeast in the western portion of the site and to the east-southeast in the eastern portion of the site (see **Figures 4 and 5**). This corresponds well with the flow directions presented in the Remedial Design (RD) document (Shaw, September 2011), which was interpreted to the southeast in the westernmost area, and to the east for the remainder of the site. Groundwater elevation data are presented in **Table 1**.

The shallow zone groundwater elevations increased across the site in all the shallow wells between December 2020 and June 2021, with the exception of 35AWW23, which had a slightly decreased groundwater elevation. The greatest elevation increase, 3.10 ft, occurred in shallow monitoring well 35AWW10. A total of eight shallow zone groundwater wells had increases greater than (>) 1 ft.

2.2.4.2 Intermediate Groundwater Zone

Wells 35AWW01 and 35AWW05 (**Figure 2**), which are completed in the intermediate groundwater zone, had groundwater elevations increased between December 2020 and June 2021, by 0.25 ft and 0.46 ft respectively. A potentiometric surface map cannot be constructed to determine the groundwater flow direction based upon two monitoring wells. The groundwater elevations are presented in **Table 1**.

2.2.5 Vertical Gradient

There are two pairs of shallow and intermediate zone co-located wells, which include monitoring wells 35AWW08 (shallow) and 35AWW01 (intermediate), and LHSMW07 (shallow) and 35AWW05 (intermediate). During the Year 7 RA(O) monitoring period, the elevation difference between wells 35AWW08 and 35AWW01 was 15.09 ft in December 2020 and 15.14 ft in June 2021. During the Year 7 RA(O) monitoring period, the elevation differences between wells LHSMW07 and 35AWW05 was 28.69 ft in December 2020 and 29.54 ft in June 2021. These elevation differences are consistent with those observed in the first 6 years of RA(O) monitoring. This difference in elevation between the shallow groundwater zone and the intermediate groundwater zone indicates that there is hydraulic separation between these two water bearing zones. Because the potentiometric level of the shallow zone groundwater is higher than the potentiometric level of the intermediate zone groundwater, a downward vertical gradient appears to exist at this site.

2.3 Groundwater Analytical Results

2.3.1 Shallow Zone

The COCs for shallow zone groundwater are PCE, TCE, cis-1,2-DCE; trans-1,2-DCE; MC; VC; 1,1,2-TCA; 1,2-DCA; 1,1-DCE; and benzene (AECOM, May 2016). Analytical results for the December 2020 and the June 2021 semi-annual samples in the eastern plume are presented in **Table 2**. The analytical results for the December 2020 and June 2021 sampling events from the western plume are presented in **Table 3**. **Figure 6** presents the analytical data for COCs that exceeded MCLs during December 2020 and/or June 2021.

Twenty-one shallow zone wells were sampled for COCs during the Year 7 RA(O), not including well LHSMW04, which was dry during the Year 7 RA(O) sampling events. Select wells were also sampled for MNA parameters per the RAWP (AECOM, August 2013) and the TM - MNA Parameters (Bhate/APTIM, February 2019).

During the December 2020 event, wells 03WW01, 35AWW06, 35AWW08, 35AWW09, 35AWW14, 35AWW18, 35AWW19, 35AWW20, 35AWW23, LHSMW06, and LHSMW07 had one or more COCs reported at concentrations above the laboratory detection limits. Monitoring wells 03WW01, 35AWW08, 35AWW09, 35AWW14, 35AWW18, 35AWW20, LHSMW06, and LHSMW07 had concentrations of COCs exceeding the MCLs, which are shown on **Figure 6**.

During the June 2021 event, monitoring wells 03WW01, 35AWW06, 35AWW08, 35AWW09, 35AWW14, 35AWW18, 35AWW19, 35AWW20, 35AWW23, LHSMW06, and LHSMW07 had one or more COCs listed above reported at concentrations above laboratory detection limits.

Monitoring wells 03WW01, 35AWW08, 35AWW09, 35AWW14, 35AWW18, 35AWW20, LHSMW06, and LHSMW07 had concentrations of COCs exceeding the MCLs, which are posted on **Figure 6**.

Groundwater monitoring well sampling forms were completed for each well sampled and are included in **Appendix E**. The laboratory analytical results are included in **Appendix F**.

2.3.2 Intermediate Zone

Wells 35AWW01 (eastern plume) and 35AWW05 (western plume) (**Figure 7**), which are completed in the intermediate groundwater zone, were sampled during the Year 7 RA(O) monitoring period. Analytical results for both intermediate groundwater zone wells were below laboratory detection limits for all analytes. The laboratory analytical results are shown in **Table 2** (35AWW01) and **Table 3** (35AWW05). Groundwater monitoring well sampling forms were completed for each well sampled and are included in **Appendix E**. The laboratory analytical reports are included in **Appendix F**. **Figure 7** shows that neither well had concentrations of COCs exceeding the MCLs.

2.3.3 Arsenic Monitoring

During the Year 7 RA(O) monitoring period, arsenic analysis was completed in select monitoring wells in accordance with the Revised Technical Memorandum, Steps to Remedy-in-Place for LHAAP-03/LHAAP-58 (AECOM, November 2012); the ESD for LHAAP-03 groundwater and LUCs (Bhate/APTIM, July 2018); the 2013 RAWP (AECOM, August 2013); and the 4th Annual RA (O) Report (Bhate/APTIM, October 2018). The 4th Annual RA (O) Report recommended continued arsenic monitoring in eastern plume monitoring wells 03WW01, 35AWW08, and 35AWW09 and western plume monitoring wells 35AWW20 and LHSMW06. 03WW01 is included as outlined in the ESD for LHAAP-03 (Bhate/APTIM, July 2018). In December 2020, groundwater from the following monitoring wells was analyzed for arsenic: 03WW01, 35AWW01, 35AWW08, and LHSMW06. Arsenic monitoring was erroneously omitted at 35AWW09 and 35AWW20 in December 2020. In June 2021, groundwater from the six monitoring wells was analyzed for arsenic: 03WW01, 35AWW01, 35AWW08, 35AWW09, 35AWW20, and LHSMW06. Monitoring of arsenic at 35AWW01 is included as this well is an intermediate groundwater well evaluated for MNA. Analytical results for the December 2020 and the June 2021 semi-annual samples in the eastern plume are presented in **Table 2**. The analytical results for the December 2020 and June 2021 sampling events from the western plume are presented in **Table 3**.

In December 2020, monitoring wells 03WW01 had an arsenic concentration 0.0152 mg/L and 35AWW08 had an arsenic concentration of 0.0244 mg/L. Both concentrations exceeded the MCL of 0.010 mg/L but were below the site background level of 0.0621 mg/L. The other three monitoring wells sampled did not have arsenic detected in the groundwater above the MCL. In June 2021, arsenic was detected above the MCL in 03WW01 (0.0169 J mg/L) but below the site background level of 0.0621 mg/L (Shaw, June 2007). The other five wells sampled for arsenic in June 2021 had concentrations below the MCL and the site background level. Therefore, the presence of arsenic in site groundwater cannot be attributed solely to reductive conditions

caused by EISB. Groundwater monitoring well sampling forms were completed for each well sampled and are included in **Appendix E**. The laboratory analytical reports are included in **Appendix F**.

2.4 Surface Water Sampling

The Eastern Plume RAWP (AECOM, August 2013) specifies that surface water monitoring for COCs (1,1,2-TCA; 1,1-DCA; 1,1-DCE; 1,2-dichloroethane; benzene; cis-1,2-DCE; TCE; PCE; and VC) be performed at surface water sample location 35ASW03, which is located in a ditch that runs parallel to 4th Street, on the western boundary of the site, adjacent to the western groundwater plume. **Figure 2** shows the surface water sampling location.

The Draft Final RACR for LHAAP-35A (58) (AECOM, October 2015) states that "*the water level in 35AWW18 will be gauged for comparison with the ditch bottom elevation at 35BSW03*." The surveyed bottom of the ditch at the lowest point is 213.58 ft amsl. The gauged water levels in the nearest upgradient monitoring well 35AWW18 in December 2020 and June 2021 were 197.80 ft amsl and 198.12 ft amsl, respectively.

No surface water was present at location 35ASW03 in the December 2020 sampling event. As recommended in the Year 2 RA(O) Report (AECOM, May 2016), surface water sampling will occur only if the groundwater elevation is at or above the bottom of the ditch. The groundwater surface in June 2021 was below the base of the ditch and groundwater was not discharging to surface water in the ditch. However, since surface water was present during the June 2021 sampling event, a sample was collected at 35ASW03 as verification that no VOCs were present in surface water. No VOCs were detected at 35ASW03 in June 2021 (**Table 2**).

Surface water samples are collected to evaluate the potential effect of the plume on surface water. Therefore, it is not likely that the groundwater at LHAAP-58 is or will contribute to the nearby surface water.

2.5 Well Abandonment

No additional wells are recommended for abandonment beyond those previously recommended in the Year 2 RA(O) Report (AECOM, May 2016), which included 35AWW02, 35AWW03, and 1004TW0001. As noted in the Year 3 RA(O) Report (Bhate, April 2018), well 1004TW006 was recommended for abandonment but could not be located.

3 PERFORMANCE MONITORING OF EISB

The EISB target area within the eastern groundwater plume is located within the vicinity of wells 03WW01 and 35AWW08. **Figure 6** presents the 2013 injection locations within the eastern groundwater plume. Well 35AWW10 is considered an upgradient clean well and well 35AWW09 is located downgradient of the EISB area, but within the eastern groundwater plume. Groundwater monitoring was performed in August 2013 prior to EISB implementation (baseline event), in October 2013 after the EISB injections, quarterly for 2 years and has been semi-annual since October 2016. The EISB performance in the eastern groundwater plume and key parameters are discussed below and much of the information is provided in **Tables 2, 4, and 5**.

The EISB target area within the western groundwater plume is located within the vicinity of wells 35AWW06, 35AWW20, and LHSMW07 (Bhate, January 2018). EISB injections were also implemented near monitoring wells 35AWW11, 35AWW14, and 35AWW23. **Figure 6** presents the EISB injection point locations within the western groundwater plume. Monitoring well 35AWW15 is considered an upgradient clean well and 35AWW24 is located downgradient of the EISB treatment area and defines the downgradient edge of the western groundwater plume. Within the western groundwater plume, a total of six monitoring wells (LHSMW07, 35AWW06, 35AWW11, 35AWW19, 35AWW20, 35AWW23) have been evaluated via a total of 8 quarterly performance monitoring events, over the 2 years following injections, to assess the EISB in the western plume (Bhate, January 2018). The quarterly groundwater performance monitoring was completed in March 2020 when monitoring was reduced to semi-annual. The first semi-annual sampling event was completed in June 2020 in the Year 6 monitoring period. This Year 7 RA(O) report presents the results of the semi-annual sampling events conducted in December 2020 and June 2021. The EISB performance in the western groundwater plume and key parameters are discussed below. Information pertinent to the discussion is provided in **Tables 3, 4, and 6**.

The monitoring program is intended to track the biologic degradation of the chlorinated solvents from PCE through VC and finally to ethene (PCE to TCE to cis-1,2-DCE to VC and finally ethene), while also monitoring the in-situ conditions for favorable biologic activity. Analytes eliminated in March and June 2019, per the Draft TM – MNA Parameters (Bhate/APTIM, January 2019), were alkalinity; nitrite; sulfide; total iron; dissolved iron and manganese; and total phosphorous.

3.1 Analysis of VOCs

VOCs that exceeded the MCL during the December 2020 or June 2021 sampling event are posted on **Figure 6**.

3.1.1 Eastern Plume

Major reductions in PCE concentration have been observed in the eastern two monitoring wells, 03WW01 and 35AWW08, located within the influence of the EISB treatment area. Well 35AWW09 is located outside the treatment area and is discussed in Section 4.

Between August 2013 (baseline sampling event) and June 2021, PCE concentrations reported for well 35AWW08 have decreased from 1,640 micrograms per liter (µg/L) to non-detect, with

concentrations below the MCL during July 2018, December 2018, June 2019, December 2019, and December 2020; PCE was non-detect at an elevated limit of detection (less than [<] 25 µg/L) in June 2021 (**Table 4**). The elevated limit of detection was a result of a dilution due to the foamy nature of the sample. This difference in PCE concentrations in well 35AWW08 is a decrease of approximately 99.5 percent (%). PCE concentrations in well 35AWW08 remained below the MCL of 5 µg/L in the four semi-annual sampling events from July 2018 through December 2019. However, in the June 2020 sampling, PCE was detected above the MCL at a concentration of 6.7 µg/L.

From August 2013 to June 2021, PCE concentrations in well 03WW01 decreased from 368 µg/L to 11 µg/L (**Table 4**). This is a decrease of approximately 97.0 % of PCE in well 03WW01. Until June 2021, PCE concentrations in well 03WW01 had remained below the MCL of 5 µg/L since October 2016, except for the December 2018 sampling event when a concentration of 15 µg/L was reported.

TCE, a degradation product of PCE, initially decreased between August 2013 and October 2013 (following EISB injections), but subsequently increased (due to reduction of PCE into TCE) indicating the occurrence of early stages of dechlorination (**Table 4**). In monitoring well 03WW01, TCE dropped below the MCL of 5 µg/L in October 2016 and has remained below the MCL through June 2021, except for reported concentrations above the MCL of 5.7 µg/L in December 2018 and 24 µg/L in December 2020.

The maximum detected TCE concentration in both the December 2020 and June 2021 sampling events was in well 35AWW09 in December 2020 at a concentration of 140 µg/L. Over the last four sampling events, TCE at 35AWW09 has remained relatively consistent from December 2019 (160 µg/L) through June 2021 (130 J [laboratory qualifier denoting an estimated result] µg/L) (**Table 4**).

The concentrations of cis-1,2-DCE remained below the MCL of 70 µg/L in the eastern plume monitoring wells (**Table 4**) during the December 2020 and June 2021 sampling events. VC was detected in well 03WW01 at 1.6 µg/L below the MCL (2 µg/L) in June 2021. VC was detected above the MCL of 2 µg/L in well 35AWW08 during both the December 2020 and June 2021 sampling events at concentrations of 6.1 J µg/L and 24 J µg/L, respectively. In part, the low concentrations of degradation daughter products cis-1,2-DCE and VC present during the reporting period are a result of the minimal amount of parent compounds remaining at the site.

3.1.2 Western Plume

PCE was not detected above the MCL of 5 µg/L in the western plume wells during the Year 7 RA(O) sampling events (**Table 3**). PCE has not been detected above the MCL in the western plume since December 2008 when it was detected at monitoring 35AWW06 (**Table 4**).

In December 2020, well 35AWW20 had reported concentrations of TCE; 1,2-DCA; VC; 1,1,2-TCA; 1,1-DCE; and benzene above MCLs (**Table 3**). During Year 7 TCE increased at 35AWW20 from 91 µg/L in December 2020 to 190 µg/L in June 2021. This increase in TCE corresponds to a 1.63 foot increase in groundwater elevation over the same time period. Although there was an increase in TCE during the reporting period at 35AWW20, there is an overall decrease of 66.7% in TCE

from 570 µg/L in December 2018 to 190 µg/L in June 2021. TCE has remained below the MCL in well 35AWW23 since June 2019 and was not detected in June 2021. TCE was detected above the MCL in LHSMW06 in December 2020 and June 2021 at concentrations of 14 µg/L and 19 µg/L, respectively.

The TCE daughter product cis-1,2-DCE was detected in well 35AWW20 above the MCL in September 2019 (110 µg/L), December 2019 (70 J µg/L), March 2020 (71 µg/L), and in June 2020 (87 µg/L) (**Table 4**). The daughter product VC has remained elevated at well 35AWW20 with concentrations during the Year 7 RA(O) of 1,800 µg/L in December 2020 and 780 µg/L in June 2021. Note that VC increased between March 2019 (54 µg/L) to as high as 2,800 µg/L in December 2019. This significant increase and then decrease in VC could be a result of the degradation of cis-1,2-DCE and/or 1,1-DCE. VC was also detected above the MCL of 2 µg/L in well LHSMW06 in the December 2020 sampling event at 4.8 µg/L and at 3.2 µg/L in the June 2021 sampling event. The TCE and 1,1-DCE concentrations in monitoring well 35AWW14, located in an area downgradient of LHSMW06, have increased from below the respective MCLs in October 2013 to above the MCLs in October 2016, and remained above the MCLs through June 2021.

In December 2020 and June 2021, 1,1,2-TCA was detected above the MCL (5 µg/L) in well 35AWW20 with a concentration of 73 µg/L; 1,1,2-TCA was not detected in any other western plume wells sampled during the Year 7 RA(O) (**Table 2**). A daughter product of both 1,1,2,-TCA and TCE, 1,1-DCE, was detected above the MCL (7 µg/L) in three wells (35AWW20, LHSMW06, and LHSMW07) during the Year 7 RA(O) reporting period. Concentrations of 1,1-DCE in western plume well LHSMW06 exceeded the MCL (7 µg/L) during each sampling event while exhibiting a slight decrease during the reporting period from 14 µg/L in December 2020 to 11 µg/L in June 2021. Concentrations of 1,1-DCE at LHSMW07 also exceeded the MCL (7 µg/L) during each sampling event while exhibiting a decrease during the reporting period from 42 µg/L in December 2020 to 12 µg/L in June 2021.

Detections of 1,1-DCE at LHSMW07 during the reporting period may be attributable to the reduction of parent compounds TCE and 1,1,2-TCA in the western plume near LHSMW07 and upgradient well 35AWW20. However, 1,1-DCE has decreased in LHSMW07 from November 2017, prior to the western plume contingency implementation, when the concentration of 1,1-DCE was 600 µg/L (**Table 4**). Concentrations of 1,1-DCE in western plume well 35AWW20 remained elevated during the Year 7 RA(O) reporting period with a concentration of 950 µg/L in December 2020 and 1,600 µg/L in June 2021. 1,1-DCE has decreased 59% at 35AWW20 from 3,900 µg/L in September 2019 to 1,600 µg/L in June 2021.

All COCs remain below the respective MCLs in upgradient well 35AWW11 and downgradient wells 35AWW06, 35AWW11, 35AWW19, 35AWW23, and 35AWW24.

3.2 Analysis of Field Parameters

The field parameters (potential of hydrogen [pH], dissolved oxygen [DO], oxidation-reduction potential [ORP], temperature, and specific conductivity) were measured in the LHAAP-35A (58) wells during the Year 7 RA(O) monitoring events. **Table 5** contains the Year 7 RA(O) field

parameters for wells 03WW01 and 35AWW08 which are located in the eastern plume. Anaerobic conditions were observed in both wells, with DO <0.5 mg/L and negative ORP. During the reporting period, pH was within the range of 6.0 to 8.5 standard units (s.u.) generally required to support microbial populations responsible for reductive dechlorination, but below the optimal range of 6.8 to 7.5 standard units (s.u). The pH in these two wells initially decreased between January 2014 and October 2014, potentially related to substrate fermentation and organic acid production. However, since October 2014, and continuing through this Year 7 monitoring period, the pH in wells within both the eastern and western plumes has generally increased, indicating a self-buffering capacity of the aquifer.

Table 6 contains the Year 7 RA(O) field parameters for wells located in the western plume. While DO was <0.5 mg/L for all wells located within the EISB treatment area, ORP was 94 and 84 millivolts (mV) in 35AWW20 where the highest concentrations of COCs were observed during December 2020 and June 2021, respectively. Downgradient of 35AWW20, the ORP was negative in wells 35AWW23 (-129 mV) and LHSMW07 (-144 mV) in June 2021. During the reporting period, pH was within the range of 6.0 to 8.5 s.u. generally required to support microbial populations responsible for reductive dechlorination, with the exception of wells 35AWW11, 35AWW19, and 35AWW24 where COCs remain below MCLs.

3.3 TOC Levels

TOC is an indicator of the presence of carbon substrate. The background level of TOC is typically less than 10 mg/L. Therefore, TOC present above the background level are indicative of the presence of substrates in groundwater near the sampled monitoring well.

3.3.1 Eastern Plume

After injection of the carbon substrate in October 2013, there was an initial spike of the TOC levels in both wells (03WW01 and 35AWW08), indicating effective substrate distribution from the injection points to the impacted zone. TOC levels have since decreased. Over the course of the Year 7 monitoring period, the TOC levels have continued to decrease, which is expected as the carbon substrate is consumed and due to migration away from the injection area.

The most recent residual TOC levels (June 2021) of 103 mg/L in 03WW01 and 119 mg/L in 35AWW08 indicate that TOC remains at sufficiently high concentrations to support reductive dechlorination, albeit at lower amounts compared to the period immediately after injection in October 2013 (**Table 5**). The June 2021 TOC levels in nearby wells such as 35AWW09 (7.68 mg/L [duplicate result]) and 35AWW10 (4.69 mg/L) (**Table 2**), are not conducive to reductive dechlorination, and indicate that the carbon substrate has not migrated outside of the 2013 treatment zone.

3.3.2 Western Plume

Within the western plume, TOC increased in the sampled monitoring wells following the March/April 2018 contingency EISB injections when compared to the baseline sampling results (March 2018), within the influence of the injection points with the exception of 35AWW19. The greatest increases were observed in 35AWW06 and 35AWW11. The June 2021 data indicate the

highest TOC in the western plume is observed at well 35AWW20 at 20.5 mg/L (**Table 6**). Historically, EISB injections increased TOC in 35AWW20 to a maximum of 53 mg/L in September 2018, indicating distribution of electron donor in this area was successful but not ideal.

3.4 Analysis of Anions

Although sulfate reduction occurs through competing reactions to reductive dechlorination, the decrease in sulfate concentration is indicative of reducing aquifer conditions. Nitrate is not naturally-occurring in either plume area; therefore nitrate is also not observed as an artifact of reductive dechlorination.

3.4.1 Eastern Plume

Decreased sulfate concentrations in October 2014 through October 2016 in the two EISB wells (03WW01 and 35AWW08) relative to levels in nearby wells outside of the EISB treatment (35AWW09 and 35AWW10), indicate the development of reducing conditions conducive to reductive dechlorination occurred following initial injections. Sulfate concentrations in 03WW01 reduced from an August 2013 baseline concentration of 534 mg/L to non-detectable levels (<0.5 mg/L) in October 2016. Since then, sulfate concentrations increased in monitoring well 03WW01 to 180 mg/L in June 2021, which is likely due to untreated groundwater moving through the eastern plume. In monitoring well 35AWW08, data trends show that sulfate was reduced from a baseline concentration of 1,480 mg/L to < 10 mg/L in October 2016 as a result of EISB and remain low (**Table 5**). Note that the largest reductions in COC concentrations occur at the same time the largest reductions in sulfate concentrations are observed.

3.4.2 Western Plume

Following the EISB injections, sulfate decreased in each of the wells influenced by the EISB injections by approximately 50%, with the exception of well 35AWW19 and 35AWW24 where sulfate reduction was observed to a lesser extent, presumably due to poor distribution of TOC in areas where COCs are historically below MCLs. In June 2021, sulfate concentrations at the center of the western plume in 35AWW20 remain slightly depressed at 955 mg/L compared to pre-injection sulfate concentration of 2,150 mg/L in November 2017 (**Table 6**). Sulfate concentrations have returned to pre-injection levels in impacted well LHSMW07 (1,760 mg/L). While sulfate concentrations >20 mg/L can be a potential cause for concern for reductive dechlorination, there is evidence that it is not inhibitory at this site where cis-1,2-DCE and VC daughter products are generated.

3.5 Dissolved Gases

3.5.1 Eastern Plume

Approximately 2 years after implementation of EISB, methane concentrations peaked, indicating methanogenesis indicative of reductive dechlorination occurred. The methane concentration during the Year 7 monitoring period in 03WW01 decreased from 1,700 µg/L in December 2020 to 420 µg/L in June 2021 (**Table 5**). The methane concentration in 35AWW08 increased from

non-detectable levels (< 1.0 µg/L) in December 2018 to 1,600 µg/L in June 2021. Methane concentrations are still representative of reducing conditions due to methanogenesis and the reduction of carbon dioxide.

Concurrently, carbon dioxide levels remain elevated in both 03WW01 and 35AWW08, supporting the continued metabolism of the carbon substrate. Ethene was detected in June 2021 at 35AWW08 (33 µg/L), indicating that complete dechlorination is occurring. However, ethene may volatilize quickly through the vadose zone and is not retained by groundwater for long periods

3.5.2 Western Plume

Methane following the EISB treatment of the western plume increased within 6 to 9 months of implementation. In June 2021, methane concentrations increased in 35AWW20, the well with the highest COC concentrations in the western plume, to 1,500 µg/L, the highest concentration reported to date. Carbon dioxide levels have remained relatively consistent in all western plume wells, regardless of the degree of contamination (**Table 6**). Ethene has increased in 35AWW20 from 1.3 µg/L in June 2019 to 11 µg/L in June 2021. Ethene production is one line of evidence that complete reduction of the COCs is occurring, although ethene may volatilize quickly through the vadose zone and is not retained by groundwater for long periods.

3.6 Dechlorinating Bacteria

3.6.1 Eastern Plume

Bacterial cultures containing DHC species, the bacteria responsible for degrading cis-1,2-DCE to VC, were introduced during the bioaugmentation event in October 2013. During the Year 3 RA(O) sampling event (October 2016), DHC species spiked to the highest levels yet observed, to 9,460,000 cells/milliliter (mL) in 03WW01 and to 25,600,000 cells/mL in 35AWW08, indicating effective distribution of the introduced culture within the eastern plume per the RAWP. Since the Year 3 RA(O) sampling event, DHC concentrations have generally decreased, which is anticipated as the concentration of chlorinated VOCs decreases to below 50 µg/L. Concentrations of DHC in the Year 7 RA(O) in June 2021 were 196 cells/mL in 03WW01 and 122,000 cells/mL in 35AWW08 (**Table 5**). DHC species counts are still adequate for the continued degradation of PCE/TCE to VC.

3.6.2 Western Plume

The DHBt population increased significantly, within 3 to 6 months, after injection in the western plume in each of the monitoring wells influenced by the EISB treatment. DHC increased within 6 months to a year in most of the monitoring wells, but not to the degree DHBt populations increased. The critical performance monitoring well in the western plume, 35AWW20, indicated an increasing trend of DHC population to 115,000 cells/mL through June 2020. Since, June 2020 the DHC population has tampered off to 72,000 cells/mL in June 2021. DHBt populations have a decreasing trend at 35AWW20 from a maximum of 5,970,000 cells/mL in July 2018 to 13,400 cells/mL in June 2021 (**Table 6**). BAV1 vinyl chloride reductase populations have increased at 35AWW20 to 55,800 cells/mL in June 2021, which is the highest cell count to date.

The increase in dechlorinating bacteria populations corresponds with the reduction of TCE and increase in VC in well 35AWW20 over this period of time, indicating reductive dechlorination is not stalling at cis-1,2-DCE even though the observed concentrations of cis-1,2-DCE are relatively stable. The DHC and the BAV1 vinyl chloride reductase populations at the current count should be sufficient to reduce VC to ethene completely via reductive dechlorination.

3.7 EISB Performance Monitoring Summary

In summary, the EISB treatment has been effective in reducing the VOC concentrations (PCE by as much as 99.7%) and the conditions are still conducive for continued reductive dechlorination. Although biologic activity has slowed and substrate mass is decreasing, the COC mass requiring treatment is also greatly diminished. Reductions of VOCs (**Figure 8**) and increases in carbon dioxide, methane, and ethene (**Tables 5** and **6**) have been observed throughout both the eastern and western plume areas. The individual COC lateral extents comparing October 2016 MCL exceedances and those documented in June 2021 show a greatly contracted plume footprint (**Figure 9**). Combining the reduction in maximum concentrations and the reduction in areal extent indicate significant remediation progress.

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4 NATURAL ATTENUATION EVALUATION

This section presents the results of the natural attenuation evaluation in accordance with the three lines of evidence discussed in the Final Remedial Design (Shaw, September 2011) for LHAAP-35A (58) groundwater COCs. The discussion below pertains only to the shallow aquifer where COCs are detected above cleanup levels. Analytes eliminated starting in 2019, per the Draft TM – MNA Parameters (Bhate/APTIM, February 2019) were alkalinity, nitrite, sulfide, total iron, dissolved manganese, total phosphorous, and dissolved iron (lab analysis).

Per the August 2013 RAWP (AECOM, August 2013), 18 shallow monitoring wells were included in the MNA monitoring program for VOCs (35AWW06, 35AWW08, 35AWW10, 35AWW11, 35AWW12, 35AWW13, 35AWW14, 35AWW15, 35AWW16, 35AWW17, 35AWW18, 35AWW19, 35AWW20, 35AWW21, 35AWW22, LHSMW04, LHSMW06, and LHSMW07). Well 35AWW01 is the intermediate groundwater well evaluated for MNA. Note that LHSMW04 was not sampled because it was dry. However, following the 2018 EISB treatment within the western plume, wells 35AWW20, LHSMW07, and 35AWW19 are performance monitoring wells for the contingency remedy.

4.1 First Line of Evidence: Change in COC Concentrations over Time and with Distance

Natural attenuation is the combination of multiple mechanisms, including biodegradation, volatilization, dilution, advection, and absorption that reduce contaminant concentrations. The decrease of COC concentrations over time and distance in the absence of any other treatment is evidence of natural attenuation (AECOM, May 2016). The change in groundwater COC concentrations over time and with distance was evaluated at LHAAP-35A (58). COC exceedances for the Year 7 RA(O) monitoring period are presented on **Figure 6**.

The only wells where COCs were detected above their respective MCLs during the Year 7 RA(O) groundwater sampling events are 03WW01, 35AWW08, 35AWW09, 35AWW14, 35AWW18, 35AWW20, LHSMW06, and LHSMW07 (**Tables 2 and 3 and Figure 6**). Monitoring well 35AWW11 had a COC exceedance in December 2020 but was below the respective MCLs for all COCs in June 2021 (**Table 3**).

The Draft Final RACR for LHAAP-35A (58) (AECOM, October 2015) states that historical groundwater data indicates that monitoring wells 35AWW20 and LHSMW07 in the western plume, and wells 35AWW08 and 35AWW09 in the eastern plume, will be the primary focus of COC trend analysis as they contain the highest relative COC concentrations. Additionally, COCs exceeded MCLs in well 03WW01, located in the eastern plume, during this monitoring period and is therefore discussed herein.

Mann-Kendall analysis for the available historical data in each well (typically starting in 2008) through the end of the Year 7 RA(O) period (June 2021) was completed for various COCs for monitoring wells 03WW01, 35AWW08, 35AWW09, 35AWW20, LHSMW06, and LHSMW07. The results are presented in **Appendix G** in tables and graphs with statistical results presented on the

lower left hand side of the table. The GSI Environmental, Inc., Mann-Kendall Toolkit, Version 1.0 software was used for this analysis. Data used to generate the Mann-Kendall analysis is presented in **Table 4.** A summary table of the Mann-Kendall results is presented below.

Mann-Kendall Trend Summary

Monitoring Well	PCE	TCE	cis-1,2-DCE	1,1-DCE	VC
03WW01	**Decreasing**	**Decreasing***	**No Trend***	--	--
35AWW08	**Decreasing***	**Decreasing***	**Stable***	--	--
35AWW09	**Increasing**	**Increasing**	**Increasing***	--	--
35AWW20	--	**Decreasing**	**Decreasing**	**Decreasing**	**Increasing**
LHSMW06	--	**Increasing**	--	**Increasing**	**Increasing**
LHSMW07	--	**Stable***	--	**Decreasing**	**Increasing***

Note:
* Most recent concentrations are below MCLs

Of the analyzed parameters and wells using Mann-Kendall statistical analysis set, three monitoring wells, 03WW01 and 35AWW08 which are located within the eastern plume and 35AWW20 which is located in the western plume, showed a decreasing trend in parent compounds (PCE and/or TCE) concentrations over time.

Although PCE in 03WW01 shows an overall decreasing trend since June 2019, PCE has slightly increased over the last two years from 3.2 µg/L to 11 µg/L in June 2021. Since June 2019, TCE in 03WW01 has been below the MCL of 5 µg/L with the exception of December 2020 (24 µg/L); TCE is currently below the MCL in June 2021 (3 µg/L). PCE in 03WW01 shows a decreasing trend with a confidence factor > 99.9%. TCE in 03WW01 shows a decreasing trend with a 99.7% confidence factor. In 35AWW08, PCE is currently non-detect and below the MCL of 5 µg/L as of June 2021. PCE in 35AWW08 shows a decreasing trend with a confidence factor > 99.9%. Although TCE currently exceeds the MCL in 35AWW08 at 53 µg/L in June 2021, TCE shows a decreasing trend with a 100% confidence factor. Although PCE trends were not evaluated at 35AWW20 because it has been non-detect or below the MCL since 2013, TCE shows a decreasing trend with a confidence factor > 99.9%.

4.1.1 Eastern Plume

Figure 8 shows COC concentration profiles in wells 03WW01, 35AWW08, and 35AWW09, and the table above summarizes the Mann-Kendall trend results for these same wells.

Well 03WW01

This well is located within the September 2013 EISB area. PCE and TCE previously detected in this well at concentrations above their respective MCLs were not detected from October 2016 through July 2018. Detections in the Year 7 RA(O) were < 5.0 µg/L for PCE and 24 µg/L for TCE in December 2020 and 11 µg/L for PCE and 3.0 µg/L for TCE in June 2020. The decrease in PCE concentration is 97.0% between August 2013 and June 2021 and the decrease in TCE is 96.8% over the same time period. Degradation of TCE resulted in the maximum concentration of cis-1,2-DCE at 117 µg/L in April 2016, with a subsequent decline in the Year 7 RA(O) to 11 µg/L in June 2021.

The Mann-Kendall trend analysis in 03WW01 was conducted for PCE; TCE; and cis-1,2-DCE for analytical results from 2008 through the end of the Year 7 RA(O) period (June 2021) (**Appendix G**). The Mann-Kendall results indicate statistical evidence of a decreasing trend in concentrations for PCE (confidence factor > 99.9%) and TCE (confidence factor of 99.7%). The cis-1,2-DCE results indicate no trend; however, the detected concentrations have been below the MCL since October 2016.

Well 35AWW08

This well is located within the September 2013 EISB area. PCE concentrations decreased rapidly after the introduction of the carbon substrate and bacterial augmentation, and the PCE concentration as of June 2021 in below the detection limit. TCE concentrations increased after substrate injection and more rapidly after bioaugmentation, reaching a peak of 953 µg/L in May 2014 followed by a decrease to 53 µg/L in June 2021. The initial increase in TCE concentrations is an indication of PCE degradation.

Degradation of TCE resulted in a temporary increase in cis-1,2-DCE concentrations, especially during the Year 2 monitoring period, reaching a high of 79.6 µg/L in October 2015. In June 2021, cis-1,2-DCE was detected below the MCL at 30 µg/L.

The Mann-Kendall trend analysis in 35AWW08 was conducted for PCE; TCE; and cis-1,2-DCE for analytical results from 2008 through the end of the Year 7 RA(O) period (June 2021) (**Appendix G**). The results provide statistical evidence of a decreasing trend in concentrations for PCE (confidence factor > 99.9%) and TCE (confidence factor of 100%). The cis-1,2-DCE results indicate a stable trend with a confidence factor of 71.8%, however, concentrations are currently below the MCL.

Well 35AWW09

This well is located downgradient of the September 2013 EISB area. PCE and TCE were detected in this well at concentrations above their respective MCLs during the Year 7 RA(O) monitoring period. PCE concentrations increased from 57.6 J µg/L in October 2013 to 350 µg/L in June 2021.

Similarly, TCE concentrations exhibited a significant increase from 8.97 J µg/L in October 2013 to 130 J µg/L in June 2021. Daughter product cis-1,2-DCE was detected below the MCL at low concentrations of 1.1 and 0.89 µg/L (duplicate result) in December 2020 and June 2021, respectively. VC was not detected during either semi-annual events in the Year 7 RA(O) period.

The Mann-Kendall trend analysis in 35AWW09 was conducted for PCE; TCE; and cis-1,2-DCE for analytical results from 2008 through the end of the Year 7 RA(O) monitoring period (June 2021) (**Appendix G**). The results provide statistical evidence of an increasing trend in PCE (99.7% confidence factor) and TCE (99.7% confidence factor) concentrations. The cis-1,2-DCE results indicate an increasing trend with a confidence factor of >99.9, however, concentrations are currently below the MCL.

The cause of the increase in COCs in well 35AWW09 appears to be migration of COCs in groundwater from the upgradient contaminated area (e.g., 35AWW08 and 03WW01). The initial increase in concentrations in 35AWW09 is likely associated with continued plume migration downgradient. Concentrations observed in well 35AWW09 are similar to pre-EISB concentrations in well 03WW01 and substantially lower than observed in well 35AWW08. The influence of biodegradation associated with EISB appears to remain within the area targeted for EISB (area of monitoring wells 35AWW08 and 03WW01) with little to no influence observed in 35AWW09.

4.1.2 Western Plume

Figure 8 shows COC concentration profiles in wells 35AWW20 and LHSMW07 only, and the table above summarizes the Mann-Kendall trend results for these same wells.

Well 35AWW20

The concentrations of 1,1-DCE; cis-1,2-DCE; TCE; and VC were detected in this well above their MCLs during the quarterly Year 7 RA(O) monitoring events (**Table 3**). EISB injections were completed in the Western Plume in March and April 2018 (Bhate, August 2018). Concentrations of TCE have decreased by approximately 40.6% between November 2017 (320 µg/L) and June 2021 (190 µg/L), while the concentration of 1,1-DCE decreased by 15.8%, between November 2017 (1,900 µg/L) and June 2021 (1,600 µg/L). Conversely, as TCE has decreased, the TCE daughter product cis-1,2-DCE has slightly increased from November 2017 (53 µg/L) to June 2021 (87 µg/L), and the TCE degradation product VC significantly increased between November 2017 and June 2021 from 78 µg/L to 780 µg/L.

In addition to the above COCs, well 35AWW20 contained 1,1,2-TCA and 1,2-DCA (daughter product of degradation of 1,1,2-TCA) above the MCLs (5 µg/L for 1,1,2-TCA and also for 1,2-DCA) during the quarterly Year 7 RA(O) monitoring events (**Table 3**). Prior to EISB treatment, the COC 1,1,2-TCA fluctuated between a minimum of 48.3 µg/L in February 2014 and a maximum of 82.7 µg/L in October 2016. Additionally, the 1,1,2-TCA daughter product, 1,2-DCA, fluctuated between a minimum of 13.2 µg/L in February 2014 and a maximum of 20.3 µg/L in October 2013. During the period following EISB treatment (March 2018 through June 2021), 1,1,2-TCA fluctuated between a minimum of 38 J µg/L in March 2019 and a maximum of 88 µg/L in

December 2018, and 1,2-DCA fluctuated between a minimum of 8.7 µg/L (duplicate) in November 2017 and a maximum of 26 µg/L in December 2018 for 1,2-DCA. 1,1-DCE and VC are daughter products of reduction of both TCE and 1,1,2-TCA.

The Mann-Kendall trend analysis in 35AWW20 was conducted for TCE; cis-1,2-DCE; 1,1-DCE; and VC for analytical results from 2008 through the end of the Year 7 RA(O) period (June 2021) (**Appendix G**). The results indicate evidence of a decreasing trend over time at 35AWW20 for TCE (> 99.9% confidence factor); 1,1-DCE (> 99.9% confidence factor); and cis-1,2-DCE (confidence factor of 98.2%). Conversely, VC concentrations indicate an increasing trend over the same time period, supporting that reductive dechlorination is occurring in the vicinity of 35AWW20 (confidence factor of 99.8%).

Well LHSMW06

The COCs TCE; 1,1-DCE; and VC exceeded the MCLs in the December 2020 and June 2021 sampling events (**Table 3**). The Mann-Kendall trend analysis in LHSMW06 was conducted for TCE; 1,1-DCE; and VC for analytical results from 2008 through the end of the Year 7 RA(O) period (June 2021). The results indicate increasing trends in concentrations (with confidence factors of > 99.9%) for TCE; 1,1-DCE; and VC over time; the maximum detected concentrations of these COCs during this reporting period were 19 µg/L, 14 µg/L, and 4.8 µg/L, respectively.

Well LHSMW07

During the initial 3-year monitoring period, the COCs 1,1-DCE; TCE; and VC were detected in this well at concentrations above their respective MCLs as well as the first sampling event in Year 4 (November 2017). However, during the Year 7 RA(O) period, only 1,1-DCE exceeded its MCL in December 2020 and June 2021, with concentrations of 64 µg/L and 12 µg/L, respectively. TCE remained below the MCL of 5 µg/L.

The Mann-Kendall trend analysis in LHSMW07 was conducted for TCE; 1,1-DCE; and VC for analytical results from 2008 through the end of the Year 7 RA(O) period (June 2021). The results indicate a decreasing trend in concentrations for TCE (confidence factor of 97.8%). The results provide statistical evidence of a decreasing trend in concentrations for 1,1-DCE (confidence factor of 99.4%) and an increasing trend in VC (confidence factor of 99.9%).

For the first time in April 2014, 1,1,2-TCA was detected above the MCL of 5 µg/L at 5.68 µg/L and was also above the MCL in October 2016 at a concentration of 7.72 µg/L (Table 3). However, 1,1,2-TCA was not detected in December 2020 or June 2021 during the Year 7 RA(O) period. It was detected at a concentration of 0.73 J µg/L in September 2018, below the MCL of 5 µg/L. The daughter product of 1,1,2-TCA, 1,1-DCA, was detected below the MCL, at concentrations between 5.7 µg/L in June 2021 and 42 µg/L in December 2018.

4.1.3 Plume Stability

Figure 8 shows trends associated with key wells located in the eastern and western plume cores and leading edges. **Figure 9** compares the extent of the plumes associated with each COC in

October 2016 compared to June 2021. The stability of each plume with regards to these COCs is evaluated through these figures in conjunction with the analyses presented in the sections above.

4.1.3.1 Eastern Plume

Based on the southeasterly direction of groundwater flow over the 5-year RA(O) monitoring period, the following wells are considered to be along the groundwater flow path: 35AWW10, 35AWW08, 03WW01, 35AWW09, and 35AWW21. The COC concentrations in the upgradient well, 35AWW10, remained below detection limits during the Year 7 RA(O) events.

Figure 8 provides plots of groundwater COC concentrations and groundwater elevation changes over time in wells 35AWW08, 03WW01, and 35AWW09. Monitoring well 35AWW08 has a Mann-Kendall decreasing trend for both PCE and TCE and a stable trend for cis-1,2-DCE. TCE in 35AWW08 was detected at a concentration above the MCL in June 2021, at 53 µg/L while PCE was not detected in June 2021. Monitoring well 03WW01, which is hydraulically downgradient of 35AWW08 and upgradient of 35AWW09, has a Mann-Kendall decreasing trend for PCE and TCE and no trend for cis-1,2-DCE. PCE in 03WW01 was detected above the MCL in June 2021 at 11 µg/L, while TCE and cis-1,2-DCE were below their respective MCLs in June 2021. At 03WW01, TCE decreased from 24 µg/L in December 2020 to 3.0 µg/L in in June 2021. The TCE daughter product cis-1,2-DCE remained well below the MCL at 03WW01 during both Year 7 events.

Monitoring well 35AWW09 is located approximately 75 ft downgradient from 03WW01. There is an increasing trend in concentrations of PCE and TCE in 35AWW09. The increase in concentrations in 35AWW09 is likely associated with downgradient dissolved phase migration from higher concentration areas near well 35AWW08. A review of the data in 35AWW09 over the course of the Year 7 monitoring period does not indicate any correlation between groundwater elevations and COC concentrations.

The concentrations of COCs in downgradient wells 35AWW12 and 35AWW21 remained below the detection limits. No increased concentrations or detections of new COCs at boundary area wells 35AWW10, 35AWW13, 35AWW22, 35AWW12, and 35AWW21 occurred, therefore, the extent of the eastern plume is stable.

4.1.3.2 Western Plume

Based on the southeasterly direction of groundwater flow, the following wells can be considered to be along the groundwater flow path from 35AWW15, 35AWW20, 35AWW23, and 35AWW19, to 35AWW24 with a less dominant southerly component from LHSMW07 and 35AWW06 to 35AWW17. Groundwater also flows southeasterly from LHSMW06 and 35AWW23 to 35AWW19 and 35AWW11 to 35AWW14. The COC concentrations in upgradient well 35AWW15 have remained below detection limits throughout the Year 7 reporting period. The in-plume well (35AWW20) exhibits the highest levels of COCs, which have, based on the Mann-Kendall analysis, shown a decreasing trend for TCE; 1,1-DCE; and cis-1,2-DCE. Only VC is showing an increasing trend indicating ongoing reductive dechlorination at 35AWW20.

The 1,1-DCE concentration in monitoring well 35AWW19, located in a downgradient direction of the western plume, has decreased from above the MCL in January 2014 through December 2018,

to below the MCL in June 2021 (2.9 µg/L). Detections of 1,1-DCE in monitoring well 35AWW19 remained below the MCLs in the Year 7 RA(O) sampling events suggesting that migration of the plume is no longer occurring in this portion of the western plume. However, 1,1-DCE detected at monitoring well 35AWW18 has recently increased from 4.1 µg/L in December 2019, to above the MCL in June 2020 (18 µg/L) and has remained above the MCL through June 2021 (20 µg/L) (**Table 4**). Monitoring well 35AWW18 is downgradient of 35AWW20 indicating plume migration in a southerly direction in this portion of the western plume. Monitoring well 35AWW04, which was not sampled during this reporting period, is also downgradient of 35AWW18 along this flow path.

It should be noted that 1,1-DCE and VC were detected in cross-gradient well LHSMW06 above the MCLs (5 µg/L and 2 µg/L, respectively), in the June 2021 sampling event. Concentrations of 1,1-DCE were 14 µg/L in December 2020 and 11 µg/L in June 2021, and VC concentrations were 4.8 µg/L in December 2020 and 3.2 µg/L in June 2021. Evidence that plume expansion is not occurring is that concentrations of COCs in perimeter wells, including boundary area wells 35AWW15, 35AWW16, and 35AWW17, exhibited no detections of COCs.

4.2 Second Line of Evidence: Geochemical Indicators

Tables 2 and 3 include the geochemical indicator parameters that are useful for MNA evaluation. Some geochemical parameters are measured in the field and are recorded during sampling events. The field parameters for LHAAP-35A (58) wells include: DO, ORP, pH, conductivity, turbidity, and temperature. The other geochemical indicators analyzed in the laboratory include: alkalinity, chloride, nitrate, nitrite, iron, sulfate, sulfide, methane, ethane, ethene, TOC, phosphorous, manganese, and dechlorinating bacteria. Analytes eliminated in 2019 per the Draft TM – MNA Parameters (Bhate/APTIM, January 2019) were alkalinity, nitrite, sulfide, total iron, dissolved manganese, total phosphorous, and dissolved iron (lab analysis). TOC continues to be evaluated due to the March/April 2018 EISB treatment with the western plume.

A summary of the geochemical aquifer conditions following ERD injections in each plume area is presented in **Tables 5 and 6**. The following discussion examines the geochemical indicators recorded during the Year 7 RA(O) monitoring period.

4.2.1 Eastern Plume

- pH – Neutral pH (6.0 to 8.5 standard units) is desirable for MNA. During the Year 7 RA(O) monitoring period, groundwater was observed within this range throughout the impacted areas of the eastern plume. Minor excursions were observed outside the plume.
- Chloride – During biodegradation of chlorinated hydrocarbons in groundwater, chloride is released. This results in higher chloride concentrations in the contaminant plume as compared to background levels in upgradient wells or in un-impacted downgradient wells (United States Environmental Protection Agency [USEPA], September 1998). During the Year 7 RA(O) reporting period, chloride was only evaluated in impacted wells 03WW01, 35AWW08, and 35AWW09 and not in any background wells. Chloride levels in the shallow zone ranged between 870 mg/L (December 2020) in 03WW01, 1,430 mg/L (December

2020) in 35AWW09, to 2,480 mg/L in plume performance monitoring well 35AWW08 (December 2020) (**Table 2**). Chloride levels within eastern plume EISB treatment area wells provide evidence of biodegradation in the eastern plume. These levels can be compared to background chloride concentrations in upgradient well 35AWW10 with a chloride concentration of 6.59 mg/L in June 2019.

- Dissolved Oxygen – DO is the most thermodynamically favored electron acceptor used by microbes for biodegradation of organic carbon, whether natural or anthropogenic (USEPA, September 1998). Anaerobic bacteria generally cannot function at DO concentrations > 0.5 mg/L and hence, reductive dechlorination will not occur. In June 2021, eastern plume treatment area wells 03WW01 and 35AWW08 had DO measurements of 0.27 and 0.04 mg/L respectively. The DO levels in the treatment area are conducive to reductive dechlorination. The DO level observed in eastern plume well 35AWW09 was 0.47 mg/L (June 2021) (**Table 2**); this DO level is just below the 0.5 mg/L threshold, to support anaerobic conditions outside of the EISB treatment area (35AWW09).
- Oxidation-Reduction Potential – The ORP levels indicate how oxidative or reductive the groundwater is in the aquifer matrix and provide real-time data to determine if conditions are conducive for anaerobic biodegradation. ORP values < 50 mV indicate that the aquifer is sulfate-reducing, and values < -200 mV are required before anaerobic conditions are favorable for the biological reductive dechlorination of chlorinated ethenes. In June 2021, ORP measurements at 03WW01 (-99 mV) and 35AWW08 (-144 mV) indicated anaerobic conditions are marginally favorable for reductive dechlorination within the treatment area (**Tables 2 and 5**); however, ORP is one of many lines of evidence of reductive dechlorination. The ORP measured outside of the EISB area was 256 mV in June 2021 at well 35AWW09 (**Table 2**). This strong positive ORP indicates that conditions in the eastern plume outside of the EISB treatment area (35AWW09) are generally aerobic and not supportive of anaerobic degradation.
- Nitrate – After DO has been depleted in the microbiological treatment zone, nitrate may be used as an electron acceptor for anaerobic biodegradation of organic carbon by denitrification. In order for reductive dechlorination to occur, nitrate concentrations in the contaminated portion of the aquifer must be less than 1.0 mg/L (USEPA, September 1998). Nitrate was not detected in June 2021 at 35AWW08 or 03WW01 (**Tables 2 and 5**). Based on these observations, nitrate reduction in the shallow aquifer is not a likely mode of microbial respiration at the site, and the lack of nitrate is favorable for achieving the reducing conditions ideal for anaerobic reductive dechlorination.
- Iron – In some cases, iron (III) (ferric iron) is used as an electron acceptor during anaerobic biodegradation of organic carbon. During this process, iron (III) is reduced to iron (II) (ferrous iron), which may be soluble in water. Ferrous iron concentrations can be used as an indicator of anaerobic degradation of organic compounds. Ferrous iron was not analyzed for during the Year 7 reporting period. However, ferrous iron concentrations during the June 2020 sampling event were as follows: 1.74 mg/L in 03WW01; 3.08 mg/L in

35AWW08; and 0.43 mg/L in 35AWW09 (**Table 2**). The comparatively higher concentrations of ferrous iron in monitoring wells 03WW01 and 35AWW08 indicate active reductive conditions in the eastern plume around these wells as a result of EISB. However, ferrous iron concentrations in 35AWW09 indicate limited reductive conditions in the portion of the eastern plume outside the influence of EISB.

- Sulfate – After DO and nitrate have been depleted in the microbiological treatment zone, sulfate may be used as an electron acceptor for anaerobic biodegradation. This process is termed "sulfate reduction" and results in the production of sulfide. Concentrations of sulfate > 20 mg/L may cause competitive exclusion of dechlorination. However, in many plumes with high concentrations of sulfate, reductive dechlorination still occurs (USEPA, September 1998). Sulfate concentrations were 180 mg/L in 03WW01 (June 2021) and 148 mg/L in 35AWW08 (June 2021) (**Tables 2 and 5**). The sulfate concentration in 35AWW09, outside the influence of EISB, was 916 mg/L in June 2021 (**Table 2**). Sulfate levels were above 20 mg/L in the wells sampled within the eastern plume.
- Dissolved gases – Methanogenesis occurs in highly reducing conditions and generally occurs after oxygen, nitrate, and sulfate have been depleted. Ethane and ethene are the end products of reductive dechlorination of chlorinated VOCs, and their levels increase if complete reductive dechlorination takes place. Methane levels above 500 µg/L are considered to indicate methanogenic conditions (USEPA, September 1998). Methane concentrations in well 03WW01 have increased from pre-EISB concentrations of 3.22 µg/L in August 2013 to 420 µg/L in June 2021 (**Table 5**). Similarly, methane concentrations in 35AWW08 increased from 10.1 µg/L in August 2013 to 1,600 µg/L in June 2021 (**Table 5**). These wells are influenced by EISB and the production of methane is a strong indicator of anaerobic conditions. Ethene was detected at a concentration of 33 µg/L in 35AWW08 in June 2021. The ethene detected in June 2021 at 35AWW08 is the highest ethene detection measured to date and indicates the complete dechlorination of chlorinated COCs in this portion of the eastern plume.
- TOC – Regardless of the electron acceptor being used, organic carbon is a required source of reduced carbon and energy to sustain microbial activity. TOC is utilized as a carbon and energy source to support the reductive dechlorination of the chlorinated COCs. TOC concentrations > 20 mg/L are considered adequate to support microbial activity (USEPA, September 1998). TOC concentrations in eastern plume area wells 03WW01 and 35AWW08, influenced by injected substrate, exceeded this threshold with December 2018 concentrations of 42 mg/L and 392 mg/L respectively (**Table 5**). The TOC remained relatively stable in the June 2021 sampling event with detections for 03WW01 and 35AWW08 being 103 mg/L and 119 mg/L respectively. These concentrations indicate that sufficient TOC remains in the aquifer to support reductive dechlorination in the eastern plume. However, TOC is decreasing towards the lower end of the threshold. As expected, TOC was very low (7.68 mg/L [duplicate result] in June 2021) at 35AWW09, which is located outside of the EISB treatment zone (**Table 2**).

- Volatile fatty acids (VFA) – The presence of VFAs (**Table 2**) confirms the fermentation of carbon substrates and should be observed coincident with elevated TOC. Low levels of acetic acid (1.2 J mg/L) and lactic acid (2.1 J mg/L) were observed in well 35AWW08 during the June 2021 sampling event, confirming fermentation is occurring to some extent. Additionally, acetic acid was detected at 3.3 J mg/L from well 03WW01 during June 2021. VFAs were non-detected in 35AWW09, which is outside of the EISB treatment zone.

The qualitative assessment of geochemical indicators in the shallow groundwater zone at LHAAP-35A (58) indicates naturally occurring geochemical conditions outside the EISB treatment zone are not supportive of MNA via the biodegradation process. However, the areas influenced by the EISB treatment continue to allow for MNA.

4.2.2 Western Plume

- pH – Neutral pH (6.0 to 8.5 standard units) is desirable for MNA. During the Year 7 RA(O) monitoring period, groundwater was observed within this range throughout the impacted areas of the western plume. Minor excursions were observed outside the plume.
- Chloride – During biodegradation of chlorinated hydrocarbons in groundwater, chloride is released to groundwater. This results in higher chloride concentrations in the contaminant plume as compared to background levels in upgradient wells or in unimpacted downgradient wells (USEPA, September 1998). Prior to EISB injection, the chloride levels in the shallow zone detected in November 2017 ranged from 1,040 mg/L in 35AWW06 to 2,650 mg/L in 35AWW11 (**Table 6**). Chloride levels in 35AWW11 were slightly lower in June 2021 than the pre-EISB injection results but still elevated (1,790 mg/L) (**Table 3**). Chloride levels in the shallow zone were also elevated in LHSMW07, and remained stable over the Year 7 RA(O) sampling events from 1,650 mg/L in December 2020 to 1,760 mg/L in June 2021. Additionally, chloride levels within the other western plume EISB treatment area wells provide evidence of biodegradation in the western plume. Although, chloride was not analyzed for in background well, these June 2021 chloride levels can be compared to background chloride concentrations in downgradient wells such as 35AWW24 which had chloride concentrations below 120 mg/L in June 2021 (**Table 3**).
- Dissolved Oxygen – DO is the most thermodynamically favored electron acceptor used by microbes for biodegradation of organic carbon, whether natural or anthropogenic (USEPA, September 1998). Anaerobic bacteria generally cannot function at DO concentrations > 0.5 mg/L and hence, reductive dechlorination will not occur. The DO levels observed in western plume wells 35AWW06, 35AWW11, 35AWW19, 35AWW20, 35AWW23, 35AWW24, and LHSMW07 were < 0.5 mg/L in June 2021 (**Table 6**). These DO levels are adequate to support anaerobic conditions within the EISB treatment area.
- Oxidation-Reduction Potential – The ORP levels indicate how oxidative or reductive the groundwater is in the aquifer matrix and provide real-time data to determine if conditions are conducive for anaerobic biodegradation. ORP values < 50 mV indicate that the aquifer is sulfate-reducing, and values < -200 mV are required before anaerobic conditions are

favorable for the complete biological reductive dechlorination of chlorinated ethenes. During the monitoring period, wells located within proximity of the EISB treatment area (35AWW06, 35AWW11, 35AWW20, 35AWW23, and LHSMW07) generally exhibited a negative ORP, ranging from -144 mV at LHSMW07 (June 2021) to 94 mV at 35AWW20 (December 2020) (**Table 3**). Areas outside of the treatment area (LHSMW06, 35AWW16, 35AWW18, 35AWW19, and 35AWW24) continued to have positive ORPs which ranged from 6 mV at 35AWW18 (June 2021) to 166 mV at 35AWW24 (June 2021) (**Table 3**). These results indicate that conditions in the western plume outside of the EISB treatment area are generally aerobic and not supportive of anaerobic degradation.

- Nitrate – After DO has been depleted in the microbiological treatment zone, nitrate may be used as an electron acceptor for anaerobic biodegradation of organic carbon by denitrification. In order for reductive dechlorination to occur, nitrate concentrations in the contaminated portion of the aquifer must be < 1.0 mg/L (USEPA, September 1998). Nitrate concentrations were non-detect or below 1 mg/L in the western plume monitoring wells in each of the sampling events during the Year 7 Year monitoring period (**Table 3**). Based on these observations, nitrate reduction in the shallow aquifer is not a likely mode of microbial respiration at the site, and the lack of nitrate is favorable for achieving the reducing conditions ideal for anaerobic reductive dechlorination.
- Iron – In some cases, iron (III) (ferric iron) is used as an electron acceptor during anaerobic biodegradation of organic carbon. During this process, iron (III) is reduced to iron (II) (ferrous iron), which may be soluble in water. Ferrous iron concentrations can be used as an indicator of anaerobic degradation of organic compounds. Ferrous iron was not analyzed for during the Year 7 reporting period. However, ferrous iron concentrations in western plume wells during the Year 6 period ranged from 1.34 mg/L (35AWW20, December 2019) to 3.3 mg/L (35AWW06 [September 2019, December 2019, and June 2020], 35AWW11 [December 2019], and 35AWW23 [September 2019]) (**Table 6**). Starting in Year 6, the ferrous iron data was collected in the field to ensure a more accurate result since the reaction from ferric to ferrous iron occurs quickly if exposed to oxygen. The relatively high concentrations of ferrous iron in monitoring wells outside of the main contaminant plume areas (35AWW06) and lower within the plume areas (35AWW20) indicates active reducing conditions exist in the western plume and that ferric iron may be utilized as an electron acceptor in some areas of the plume generating elevated ferrous iron concentrations.
- Sulfate – After DO and nitrate have been depleted in the microbiological treatment zone, sulfate may be used as an electron acceptor for anaerobic biodegradation. This process is termed “sulfate reduction” and results in the production of sulfide. Concentrations of sulfate > 20 mg/L may cause competitive exclusion of dechlorination. However, in many plumes with high concentrations of sulfate, reductive dechlorination still occurs (USEPA, September 1998). Sulfate concentrations decreased significantly downgradient of the main plume in 35AWW06 from 1,560 mg/L in November 2017 to 197 mg/L in June 2021 (**Table 6**). Concentrations have fluctuated within the plume (35AWW20) decreasing from

2,150 mg/L in November 2017 to 882 mg/L in July 2018 and increasing again to 955 mg/L in June 2021 (**Table 6**).

- Dissolved gases – Methanogenesis occurs in highly reducing conditions and generally occurs after oxygen, nitrate, and sulfate have been depleted. Ethane and ethene are the end products of reductive dechlorination of chlorinated VOCs and their levels increase if complete reductive dechlorination takes place. Methane levels above 500 µg/L are considered to indicate methanogenic conditions (USEPA, September 1998). Methane concentrations above 500 µg/L in June 2021 were present in wells 35AWW06, 35AWW11, 35AWW20, 35AWW23, and LHSMW07 (**Table 3**). Ethene was detected within the western plume in wells LHSMW07 (19 µg/L) and 35AWW20 (11 µg/L) in June 2021; the two wells with highest detected VOC concentrations. This indicates complete degradation of VOCs within the wells containing the highest VOC detections in the western plume.
- Total Organic Carbon – Regardless of the electron acceptor being used, organic carbon is a required source of reduced carbon and energy to sustain microbial activity. TOC is utilized as a carbon and energy source to support the reductive dechlorination of the chlorinated COCs. TOC concentrations > 20 mg/L are considered adequate to support microbial activity (USEPA, September 1998). TOC concentrations in the western plume increased following EISB injections, which is to be expected. However, during the Year 7 reporting period all wells in the western plume, with exception of 35AWW20 (June 2021) and 35AWW23 (December 2020), had TOC concentrations below 20 mg/L (**Table 3**). Although the TOC concentration was relatively low in 35AWW20 (September 2018) after EISB injections (53 mg/L) and has declined to 20.5 mg/L (June 2021), ethene was detected, indicating that complete reductive dechlorination is occurring.
- VFAs – The presence of VFAs (**Table 3**) confirms the fermentation of carbon substrates and should be observed coincident with elevated TOC. The highest levels of acetic acid (65 mg/L) and propionic acid (2.8 mg/L) were observed in well 35AWW23 during the Year 7 reporting period in the December 2019 sampling event, confirming that some fermentation is occurring even though COC concentrations were already relatively low in this well. Where COCs were elevated, at 35AWW20, acetic acid was detected at 0.61 J mg/L in June 2021 and all other VFAs were non-detect, indicating fermentation was not occurring where remedial action was required.

The qualitative assessment of geochemical indicators in the shallow groundwater zone at LHAAP-35A (58) indicates that geochemical conditions in many areas of the plume are supportive of MNA, both within the areas influenced by the EISB treatment and also downgradient of that area.

4.3 Third Line of Evidence: Predictive Modeling and Microbial Analysis

If the first two lines of evidence for MNA are deemed inadequate or inconclusive, and/or if the need for a contingency remedy is evaluated, data from field or microcosm studies will be necessary to establish the third line of evidence for MNA.

Dechlorinating bacteria, DHC ethenogenes, and associated functional genes have been analyzed in wells within and outside the eastern and western plumes. Microbial population analyses was discontinued during the Year 7 reporting period at wells 35AWW09, 35AWW10 and 35AWW24, located outside of the EISB areas as recommended in the Year 5 RA(O) Report. It has been established that the microbial populations are limited and unaffected by the EISB injections in these areas.

4.3.1 Eastern Plume

Dechlorinating bacteria, DHC and DHBt, BAV1 VC reductase, and associated functional genes were analyzed in groundwater samples from wells 03WW01, 35AWW08, and 35AWW09, within and outside the eastern plume. Generally, the microbial population counts and the functional gene counts have been at or below the laboratory reporting limits in areas not influenced by bioaugmentation such as at 35AWW09, indicating a limited natural population of the bacteria and the absence of gene expression necessary for anaerobic biological degradation of the COCs. In June 20201 at monitoring well 35AWW08, the microbial population counts (122,000 cells/mL for DHC and 4,500 cells/mL for DHBt) have continued to decreased since June 2019 (**Table 5**).

The microbial population count in 03WW01 (196 cells/mL for DHC and 249 cells for DHBt in June 2021) was low compared to the cell counts in 35AWW08, and low compared to 03WW01 cell counts in June 2020 (26,600 cells/mL for DHC and 1,610 cells/mL for DHBt). However, the continued presence of the BAV1 VC reductase in June 2021 in 03WW01 (11 cells/mL in December 2020) and 35AWW08 (144 cells/mL in June 2021) indicates that complete reductive dechlorination can occur to allow VC to reduce to ethene over time.

4.3.2 Western Plume

Dechlorinating bacteria, DHC ethenogenes, DHBt, BAV1 VC reductase, and associated functional genes were analyzed in groundwater samples from wells within and outside the western plume in the Year 7 reporting period. Monitoring well 35AWW20 had significant changes in detections of DHC over the Year 7 reporting period. DHC increased in 35AWW20 from 7,800 cells/mL in December 2020 to 72,200 cells/mL in June 2021, while decreasing in LHSMW07 from 7,580 cells/mL in December 2020 to 4,430 cells/mL in June 2021. DHBt increased from 436 cells/mL in December 2020 to 13,400 cells/mL in June 2021. BAV1 VC reductase was detected at well 35AWW20 at 55,800 cells/mL in June 2021 at the highest count to date. An increase in VC reductase indicates that complete reductive dechlorination can occur to allow VC to reduce to ethene over time.

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5 CONCLUSIONS AND RECOMMENDATIONS

COC concentration data and geochemical indicator measurements were collected over the course of the monitoring period at LHAAP-35A (58) to evaluate the effectiveness of the EISB and MNA groundwater remedy. A tiered approach based on assessment of three lines of evidence was used to evaluate the occurrence of natural attenuation in site groundwater. The first line of evidence evaluated reductions in COC concentrations over time and with increasing distance from source areas, including evaluation of Mann-Kendall tests for trends; the second line of evidence evaluated geochemical indicators; and the third line of evidence evaluated microbial conditions in the aquifer. The results of the tiered evaluation and the conclusions are summarized below.

Data for Year 7 RA(O) were collected in December 2020 and June 2021. The groundwater flow direction at the site is interpreted to the southeast in the western portion of the site and to the east-southeast in the eastern portion of the site (**Figures 4 and 5**).

The EISB treatment in the eastern and western plume area appears to be effectively reducing the VOC concentrations, and the current groundwater conditions are conducive to continued reductions of VOCs throughout most of the site. **Figure 8** presents the graphical depiction of the trends of the COCs of various monitoring wells within LHAAP-58. With the exception of 35AWW09, the trend plots display decreasing COC trends in both the eastern and western plumes. Furthermore, **Figure 9** presents the change in the plumes from October 2016 to June 2021, which demonstrates the reduced lateral extent of the plumes.

The primary initial influence of EISB within the eastern plume was a reduction of PCE in 03WW01 and 35AWW08. TCE concentrations were observed to increase at each well after the September 2013 substrate injection, as PCE was degraded to TCE, followed by a decrease in concentration as the rate of TCE formation became lower than the rate of TCE biodegradation. Generally, cis-1,2-DCE was observed to increase in these two wells as a direct result of biodegradation of TCE. PCE; TCE; cis-1,2-DCE; and VC which had reduced to non-detect at well 03WW01 by the end of the Year 3 RA(O) (October 2016). PCE concentrations increased at 03WW01 in June 2021 to 11 µg/L, above the MCL of 5 µg/L. In December 2020, TCE concentrations increased in 03WW01 to 24 µg/L, but returned to a level below the MCL in June 2021 (3 5 µg/L). Concentrations of cis-1,2-DCE and VC were below MCLs in December 2020 and June 2021 at 11 µg/L and 1.6 µg/L, respectively. TCE and VC remained above MCL in well 35AWW08 in June 2021 at 53 and 24 J µg/L, respectively. However, based upon the presence of ethene in both wells, complete degradation is occurring.

Concentrations of PCE and TCE in 35AWW09, located within the eastern plume but outside the EISB area, have fluctuated seasonally with the December 2019 results the highest over the last 5 years. Due to aquifer geochemical conditions outside of the EISB area that are unfavorable to reductive dechlorination, additional treatment in the area of 35AWW09 may need to be considered. It should be noted that since December 2019, as groundwater elevations increased, both PCE and TCE have steadily decreased. Continued monitoring of 35AWW09 will allow for further evaluation of the COC concentration trends. The concentrations of COCs in downgradient

well 35AWW21, which is located outside the eastern plume, have remained below the detection limits. Therefore, based on the inferred east-southeastern groundwater flow path, COC levels are not migrating beyond the original plume boundaries. Since COCs have not appeared at 35AWW21, other natural attenuation properties such as dilution, dispersion, sorption, and volatilization appear to be occurring at a rate sufficient to mitigate off-site migration. Concentrations of COCs downgradient of monitoring wells 35AWW08, 03WW01, and 35AWW09 have exhibited no increase in COC concentrations or new detections of COCs. Specifically, the boundary area wells 35AWW10, 35AWW13, 35AWW22, 35AWW12, and 35AWW21 do not have increasing COC trends. Therefore, it appears that the lateral extent of the eastern plume is stable.

In the western plume, EISB treatment was completed in March and April 2018 per the Final RAWP (Bhate, January 2018). The concentrations of COCs (PCE; TCE; cis-1,2-DCE; and VC), in upgradient well 35AWW15 have remained below detection limits during this monitoring period. Concentrations of COCs in perimeter wells, 35AWW15, 35AWW16, and 35AWW17, which are located well away from the most impacted area, remain non-detect or below MCLs. Perimeter well 35AWW18 had concentrations of 1,1-DCE above the MCL during this monitoring period. As a result it is recommended to sample downgradient monitoring well 35AWW04 (if water is present) in the Year 8 RA(O). If monitoring well 35AWW04 remains dry throughout the Year 8 RA(O) period, a new shallow zone monitoring well will be considered to bound the downgradient extent of the 1,1-DCE groundwater plume. PCE concentrations in LHSMW07 and 35AWW20, wells within the influence of the EISB treatment, have remained well below the MCL (5 µg/L) since the EISB treatment was not detected in both well during the June 2021 sampling event. While TCE, 1,1-DCE, and cis-1,2-DCE exceed their respective MCLs at 35AWW20 during the current reporting period, there is an overall decrease of each COC between December 2018 and June 2021. Conversely, VC has increased at 35AWW20 from 110 µg/L in December 2018 to 1,800 µg/L in December 2020 and 780 µg/L in June 2021. TCE was detected at LHSMW07 during the reporting period but at concentrations below the MCL. Concentrations of cis-1,2-DCE have been non-detect or below MCLs since September 2018 in LHSMW07. However, VC has increased from non-detect in September 2018 to 44 µg/L in June 2020 LHSMW07. VC concentrations have significantly decreased to non-detect in June 2021.

The qualitative assessment of geochemical indicators and the absence of dechlorinating bacteria in the shallow groundwater zone (outside of the EISB zone) at LHAAP-35A (58) indicates current naturally occurring geochemical conditions are not optimal for, but may not preclude, MNA.

Groundwater monitoring to be performed at LHAAP-35A (58) on the eastern plume will be reduced to VOC analysis on an annual basis during the Year 8 RA(O) in compliance with the Eastern Plume RAWP (AECOM, August 2913). Groundwater monitoring on the western plume will continue to be performed on a semi-annual basis during the Year 8 RA(O) in compliance with the RAWP Contingency Remedy for the Western Plume (Bhate, January 2018). Additional arsenic sampling will continue on select wells. The Year 8 RA(O) groundwater monitoring plan is presented in **Table 7**. No change in land or groundwater use has occurred at the site, and current land use complies with the ROD (Bhate/APTIM, June 2018).

A surface water sample was collected at surface water sample location 35ASW03 in June 2021 during the Year 7 RA(O) monitoring period. Although not required, given that the surface water elevation was higher than the groundwater elevation of the shallow zone, the sample was collected to verify that no VOCs were present in surface water. All VOCs were non-detect at 35ASW03. Surface water sampling will be conducted in the Year 8 RA(O) when the groundwater elevation in 35AWW18 is at or above the surveyed ditch elevation.

A LUC compliance inspection was conducted on June 23, 2021. No compliance issues or concerns were noted during the annual inspection (**Appendix A**). Well conditions, are documented in the photographic log presented in **Appendix B**. The well inspection information is documented on the Well Inspection Forms (**Appendix C**). During the well inspection in June 2021 monitoring well LHSMW06 was identified as needing paint. Therefore LHSMW06 will be repainted in the upcoming Year 8 monitoring period. Mowing the well areas is conducted regularly, as part of routine maintenance at the site, particularly before sampling events.

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FIGURES

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TABLES

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APPENDIX A
ANNUAL LAND USE CONTROL COMPLIANCE CERTIFICATION DOCUMENTATION

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APPENDIX B
PHOTOGRAPHIC LOG

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APPENDIX C
WELL INSPECTION FORMS

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APPENDIX D
TECHNICAL MEMORANDUM - MONITORED NATURAL ATTENUATION MONITORING PARAMETERS

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APPENDIX E
MONITORING WELL SAMPLE COLLECTION FORMS

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APPENDIX F
LABORATORY ANALYTICAL RESULTS
(PROVIDED ON CD)

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APPENDIX G
MANN-KENDALL TREND TEST RESULTS

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FIGURES

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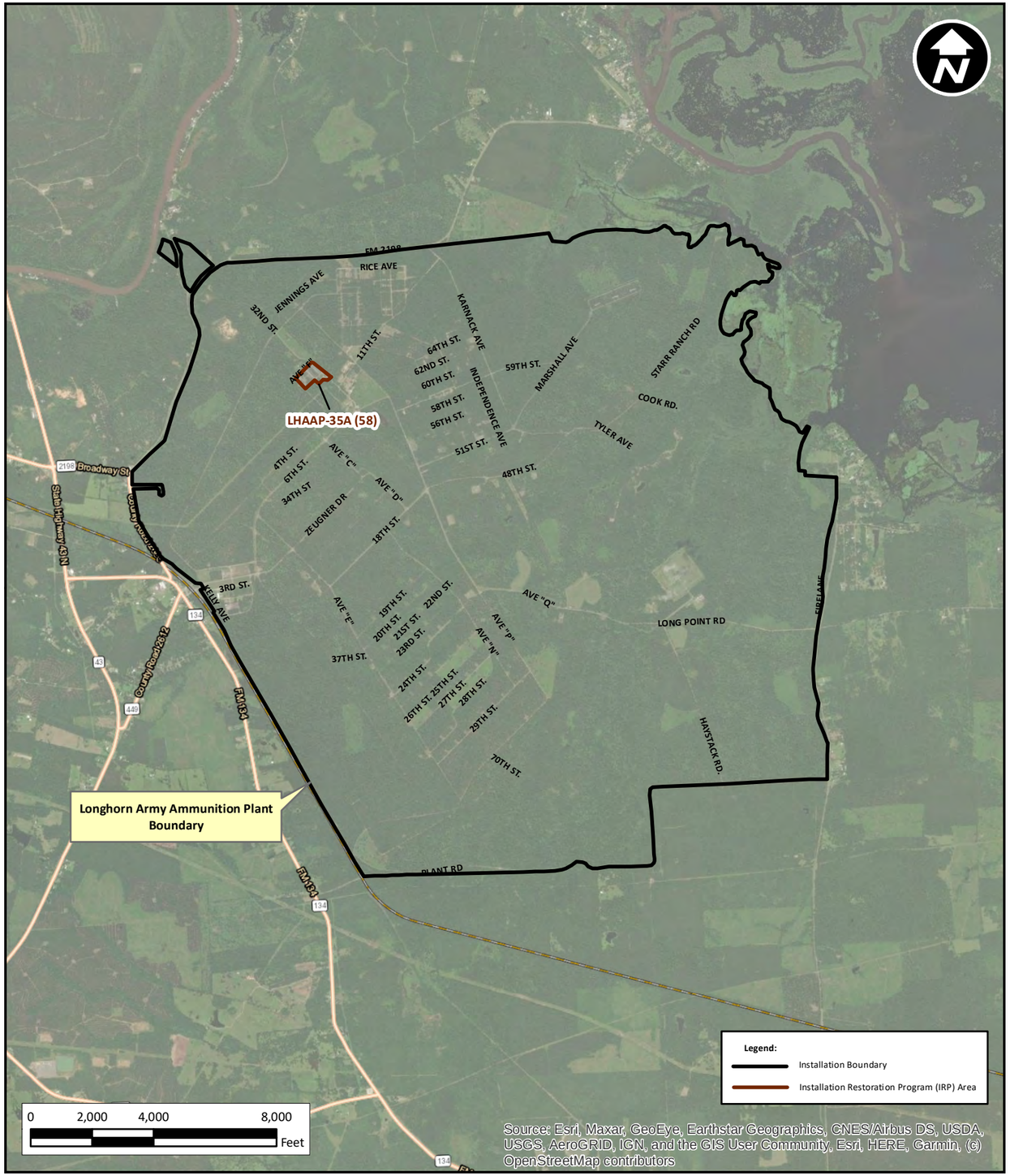

Longhorn Army Ammunition Plant
Location and Site Vicinity Map

Figure 1

Year 7 Annual Remedial Action Operation Report (December 2020 – June 2021)
LHAAP-35A (58), Shops Area
Longhorn Army Ammunition Plant
Karnack, Texas

PROJECT NO:	SCALE:	DATE:	DRAWN BY:
NWO1312.0150.012.0001.03	As Shown	7/30/2021	MRM

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Figure 2

Monitoring Well Location Map

Year 7 Annual Remedial Action Operation Report (December 2020 – June 2021)
LHAAP-35A (58), Shops Area
Longhorn Army Ammunition Plant
Karnack, Texas

DRAWN BY: MRM

DATE: 1/5/2022

SCALE: As Shown

PROJECT NO: NWO1312.0150.012.0001.03

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32ND ST.

HARRELL ST.

TACKET DR.

TWEEL

LHAAP-61

LHAAP-02

LHAAP-35A (58)

10TH ST.

9TH ST.

8TH ST.

11TH ST.

6TH ST.

4TH ST.

AVE. "G"

LHAAP-03

LHAAP-60D

LHAAP-68

LHAAP-69

LHAAP-56

LHAAP-59

LHAAP-65

35AWW01
35AWW02
35AWW03
35AWW04
35AWW05
35AWW06
35AWW07
35AWW07R
35AWW08
35AWW09
35AWW10
35AWW11
35AWW12
35AWW13
35AWW14
35AWW15
35AWW16
35AWW17
35AWW18
35AWW19
35AWW20
35AWW21
35AWW22
35AWW23
35AWW24
03WW01
1004TW001
1004TW006
35ASW03
LHSMW03
LHSMW04
LHSMW05
LHSMW06
LHSMW07

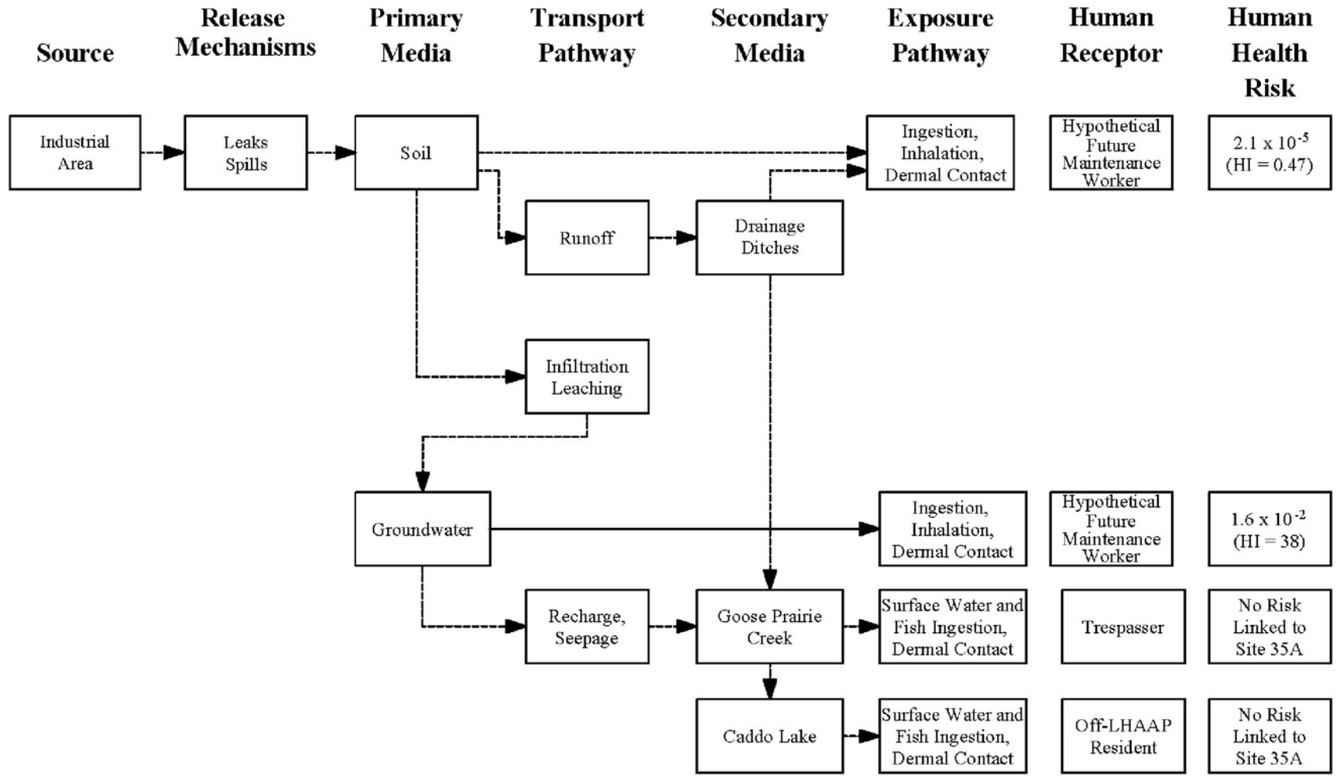
Aerial Photography Source: Google Earth, April 2018

0 75 150 300 Feet

Legend:

- 35AWW06 Sampled Well Locations
- Shallow Monitoring Well Location
- Shallow Temporary Monitoring Well Location
- Intermediate Monitoring Well Location
- Deep Monitoring Well Location
- Surface Water Sample Location
- Groundwater Use Restrictions Area
- Installation Restoration Program (IRP) Area
- Stream
- 401 Building Number

01071682



Pathway considered for remediation

Pathway *not* considered for remediation

Source: Shaw, May 2010

Conceptual Site Model

Figure 3

Year 7 Annual Remedial Action Operation Report (December 2020 – June 2021)
LHAAP-35A (58), Shops Area
Longhorn Army Ammunition Plant
Karnack, Texas

DRAWN BY: MRM

DATE: 7/30/2021

SCALE: As Shown

PROJECT NO: NWO1312.0150.012.0001.03

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HARRELL ST
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AVE "F"
AVE "G"
8TH ST.
9TH ST.
10TH ST.
11TH ST.
6TH ST.
4TH ST.

LHAAP-35A (58)

35AWW03 (NM)
LHSMW05 (NM)
35AWW13 (194.51)
35AWW22 (186.87)
35AWW07R (NM)
35AWW15 (205.92)
35AWW10 (202.11)
35AWW08 (188.37)
LHSMW04 (Dry)
35AWW12 (186.27)
03WW01 (186.96)
35AWW09 (185.92)
LHSMW06 (204.65)
35AWW21 (185.72)
1004TW001 (NM)
35AWW20 (204.47)
1004TW006 (NM)
LHSMW03 (NM)
35AWW11 (192.20)
35AWW16 (203.63)
35AWW14 (187.66)
LHSMW07 (203.39)
35AWW23 (200.52)
35AWW06 (201.88)
35AWW17 (198.32)
35AWW18 (197.80)
35AWW19 (198.42)
35AWW24 (195.19)

204.00
202.00
200.00
198.00
196.00
194.00
192.00
190.00
188.00
186.00

Aerial Photography Source: Google Earth, April 2018

0 75 150 300 Feet

Legend:
- Shallow Monitoring Well Location
- Shallow Temporary Monitoring Well Location
- (187.66) Potentiometric Surface Elevation in Feet Above Mean Sea Level
- (NM) Not Measured
- Potentiometric Surface Contour
- Direction of Groundwater Flow
- Installation Restoration Program (IRP) Area
- 401 Building Number

December 2020
Shallow Potentiometric Map

Figure 4

Year 7 Annual Remedial Action Operation Report (December 2020 – June 2021)
LHAAP-35A (58), Shops Area
Longhorn Army Ammunition Plant
Karnack, Texas

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SCALE: As Shown

PROJECT NO: NWO1312.0150.012.0001.03

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AVE "F"
AVE "G"
LHAAP-35A (58)
8TH ST.
9TH ST.
10TH ST.
11TH ST.
6TH ST.
4TH ST.
35AWW03 (NM)
35AWW13 (196.17)
35AWW22 (187.04)
35AWW07R (NM)
35AWW15 (206.02)
35AWW10 (205.21)
LHSMW05 (NM)
LHSMW04 (Dry)
35AWW12 (187.99)
03WW01 (187.41)
35AWW09 (186.59)
LHSMW06 (207.11)
35AWW08 (188.67)
35AWW20 (206.10)
1004TW006 (NM)
1004TW001 (NM)
35AWW21 (188.35)
LHSMW03 (NM)
35AWW16 (204.60)
35AWW14 (190.61)
35AWW11 (192.85)
LHSMW07 (204.70)
35AWW23 (200.02)
35AWW06 (202.27)
35AWW18 (198.12)
35AWW17 (198.42)
35AWW19 (199.07)
35AWW24 (195.89)
206.00
204.00
202.00
200.00
198.00
196.00
194.00
192.00
190.00
188.00

Aerial Photography Source: Google Earth, April 2018

0 75 150 300
Feet

Legend:

- Shallow Monitoring Well Location
- Shallow Temporary Monitoring Well Location
- (188.35) Potentiometric Surface Elevation in Feet Above Mean Sea Level
- (NM) Not Measured
- Potentiometric Surface Contour
- Direction of Groundwater Flow
- Installation Restoration Program (IRP) Area
- *401* Building Number

June 2021
Shallow Potentiometric Map

Figure 5

Year 7 Annual Remedial Action Operation Report (December 2020 – June 2021)
LHAAP-35A (58), Shops Area
Longhorn Army Ammunition Plant
Karnack, Texas

DRAWN BY: MRM

DATE: 7/30/2021

SCALE: As Shown

PROJECT NO: NWO1312.0150.012.0001.03

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Legend
J = Estimated value
U = Result is less than the laboratory detection limit
< = less than
COC = Contaminant of Concern
USEPA = United States Environmental Protection Agency
MCL = Maximum Contaminant Limit
DCA = Dichloroethane
DCE = Dichloroethene
PCE = Tetrachloroethene
TCA = Trichloroethane
TCE = Trichloroethene
VC = Vinyl Chloride
Bold Red values exceed the USEPA MCL
All results and MCLs are reported in micrograms per liter (µg/L)

COCs shown on this figure	
COC	MCL
1,1-DCE	7
1,1,2-TCA	5
1,2-DCA	5
Benzene	5
cis-1,2-DCE	70
PCE	5
trans-1,2-DCE	100
TCE	5
VC	2

LHSMW06		12/3/2020	6/3/2021
COC	MCL	Result	Result
1,1-DCE	7	**14**	**11**
cis-1,2-DCE	70	62	**71**
TCE	5	**14**	**19**
VC	2	**4.8**	**3.2**

03WW01		12/1/2020	6/2/2021
COC	MCL	Result	Result
PCE	5	<5.0U	**11**
TCE	5	**24**	3.0
VC	2	<5.0U	1.6

35AWW20		12/3/2020	6/3/2021
COC	MCL	Result	Result
1,1,2-TCA	5	**73**	**73**
1,1-DCE	7	**950**	**1,600**
1,2-DCA	5	**16**	**17**
Benzene	5	**8.2**	**8.9 J**
cis-1,2-DCE	70	63	**87**
TCE	5	**91**	**190**
VC	2	**1,800**	**780**

35AWW09		12/7/2020	6/2/2021	6/2/2021
COC	MCL	Result	Result	Dup. Result
PCE	5	**370**	**350**	**310**
TCE	5	**140**	**130 J**	**130 J**

LHSMW07		12/3/2020	6/2/2021
COC	MCL	Result	Result
1,1-DCE	7	**64**	**12**
VC	2	**42**	<0.5U

35AWW08		12/1/2020	6/2/2021
COC	MCL	Result	Result
PCE	5	<5.0U	<25U
TCE	5	<5.0U	**53**
VC	2	**6.1 J**	**24 J**

35AWW14		12/7/2020	6/1/2021
COC	MCL	Result	Result
1,1-DCE	7	**9.4**	**10.0**
TCE	5	**11**	**14**

35AWW18		12/1/2020	12/1/2020	6/1/2021
COC	MCL	Result	Dup. Result	Result
1,1-DCE	7	**22**	**22**	**20**

Aerial Photography Source: Google Earth, April 2018

0 100 200 400 Feet

Legend:
- Shallow Monitoring Well Location
- Shallow Temporary Monitoring Well Location
- Shallow Monitoring Well Location — No exceedances above MCLs for listed COCs
- Shallow Monitoring Well Location - Removed from RA(O)
- KB1® Plus Injection Point Locations (March 2018)
- KB1® Injection Point Locations (March 2018)
- Injection Locations (2013)
- (NS) Not Sampled
- Installation Restoration Program (IRP) Area
- Direction of Groundwater Flow (June 2021)
- Stream
- 401 Building Number

COC Exceedances in Shallow Groundwater (December 2020 - June 2021)

Figure 6

Year 7 Annual Remedial Action Operation Report (December 2020 – June 2021)
LHAAP-35A (58), Shops Area
Longhorn Army Ammunition Plant
Karnack, Texas

DRAWN BY: MRM
DATE: 8/31/2021
SCALE: As Shown
PROJECT NO: NWO1312.0150.012.0001.03

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Legend
COC = Contaminant of Concern
MCL = Maximum Contaminant Limit
DCA = Dichloroethane
DCE = Dichloroethane
PCE = Tetrachloroethene
TCA = Trichloroethane
TCE = Trichloroethene
VC = Vinyl Chloride
All results and MCLs are reported in micrograms per liter (µg/L)

COCs shown on this figure

COC	MCL
1,1-DCE	7
1,1,2-TCA	5
1,2-DCA	5
Benzene	5
cis-1,2-DCE	70
PCE	5
trans-1,2-DCE	100
TCE	5
VC	2

HARRELL ST.
32ND ST.
TACKET DR
AVE "F"
AVE "G"
8TH ST.
9TH ST.
10TH ST.
11TH ST.
6TH ST.
4TH ST.
LHAAP-35A (58)
35AWW01
35AWW05
207
102
102
102-R
103
AVE "P"
L-6
101
GH-1
401

Aerial Photography Source: Google Earth, April 2018

0 100 200 400 Feet

Legend:
- Intermediate Monitoring Well Location, No exceedances above MCLs for listed COCs
- Installation Restoration Program (IRP) Area
- Stream
- 401 Building Number

COC Exceedances in Intermediate Groundwater (December 2020 and June 2021)

Figure 7

Year 7 Annual Remedial Action Operation Report (December 2020 – June 2021)
LHAAP-35A (58), Shops Area
Longhorn Army Ammunition Plant
Karnack, Texas

DRAWN BY: MRM
DATE: 7/30/2021
SCALE: As Shown
PROJECT NO: NWO1312.0150.012.0001.03

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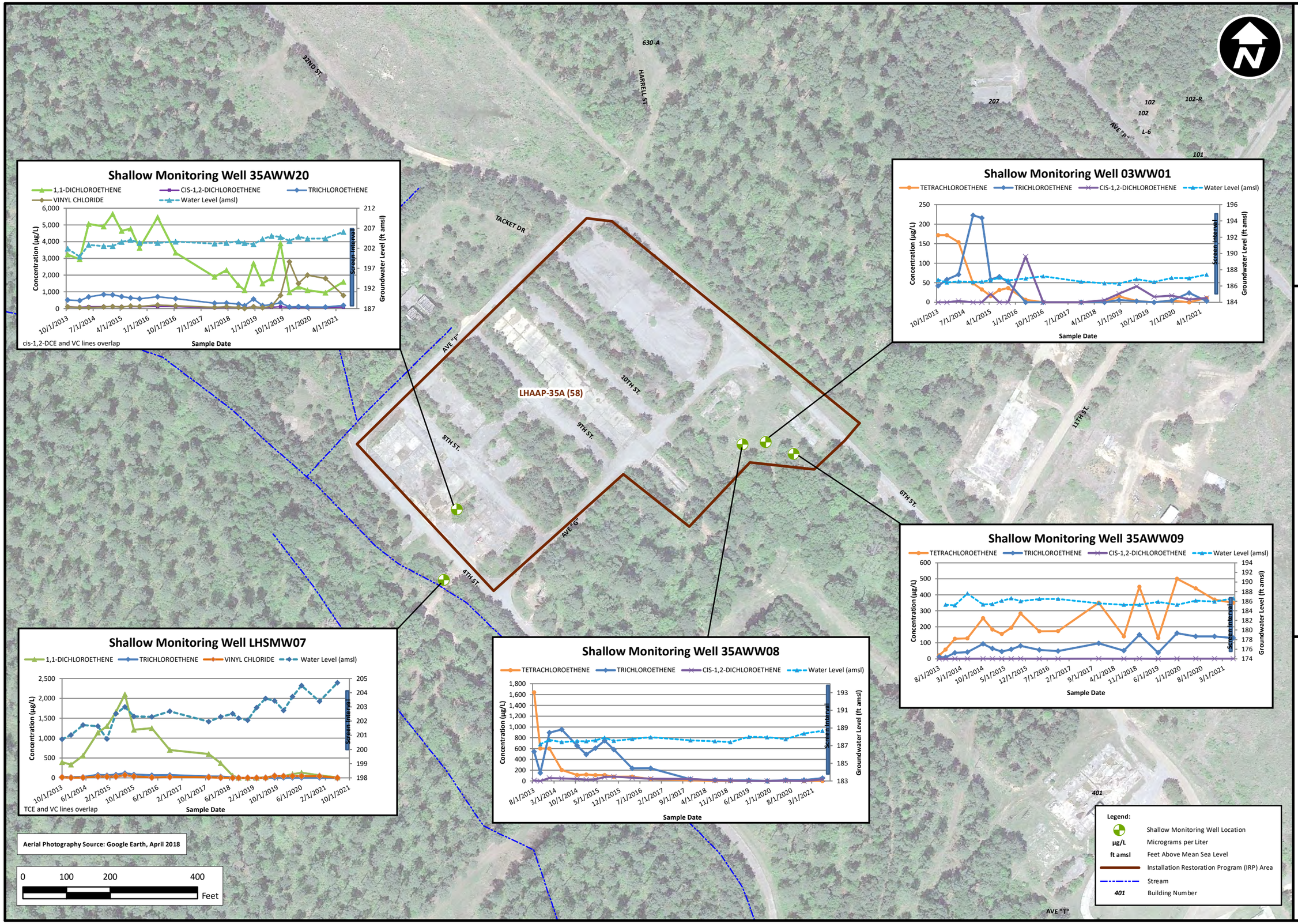

Shallow Monitoring Well 35AWW20

cis-1,2-DCE and VC lines overlap

Shallow Monitoring Well 03WW01

Shallow Monitoring Well 35AWW09

Shallow Monitoring Well LHSMW07

TCE and VC lines overlap

Shallow Monitoring Well 35AWW08

Aerial Photography Source: Google Earth, April 2018

0 100 200 400 Feet

Legend:

- Shallow Monitoring Well Location
- µg/L — Micrograms per Liter
- ft amsl — Feet Above Mean Sea Level
- Installation Restoration Program (IRP) Area
- Stream
- 401 — Building Number

COC Concentration Trends

Figure 8

Year 7 Annual Remedial Action Operation Report (December 2020 – June 2021)
LHAAP-35A (58), Shops Area
Longhorn Army Ammunition Plant
Karnack, Texas

DRAWN BY: MRM

DATE: 7/30/2021

SCALE: As Shown

PROJECT NO: NW01312.0150.012.0001.03

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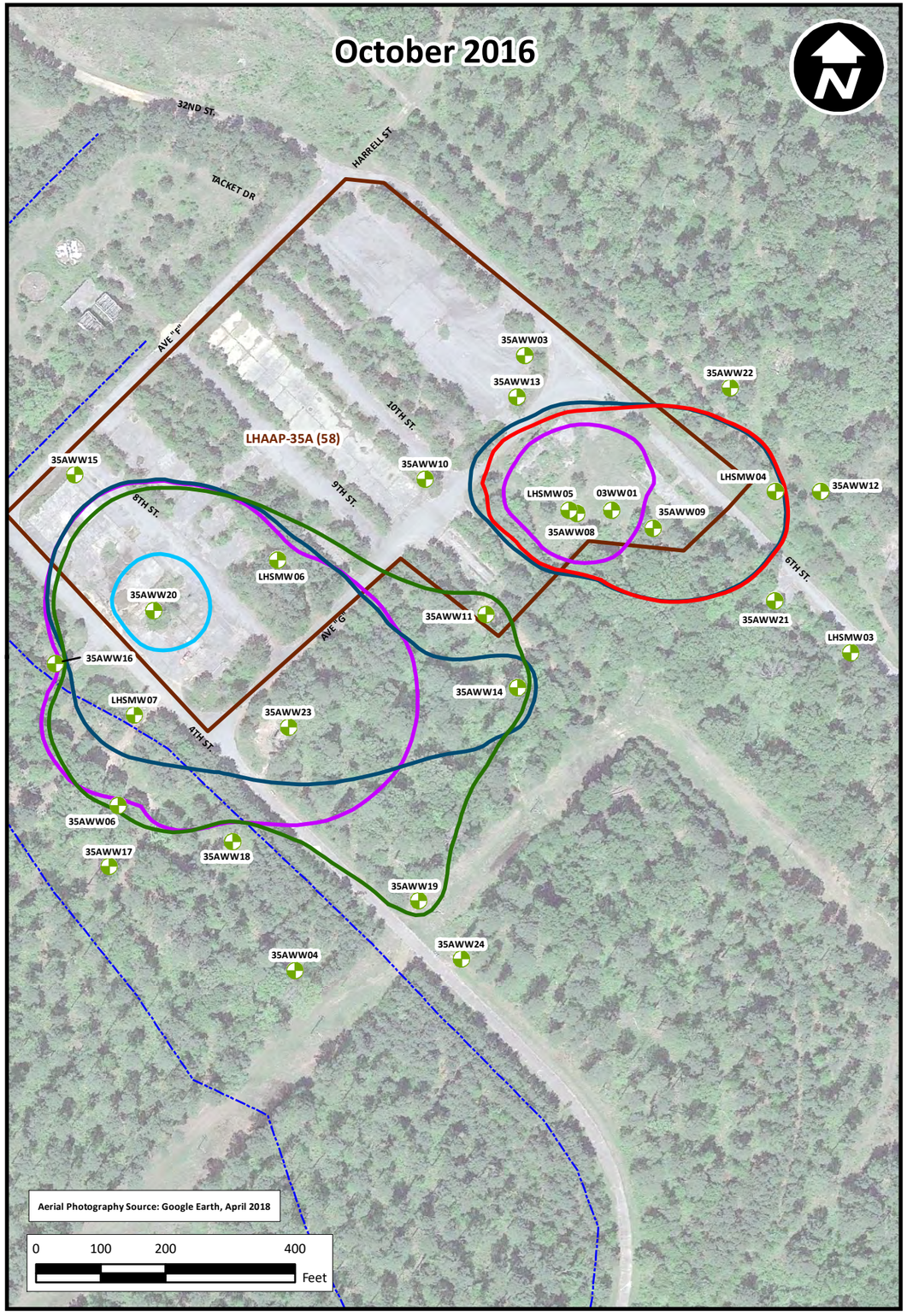

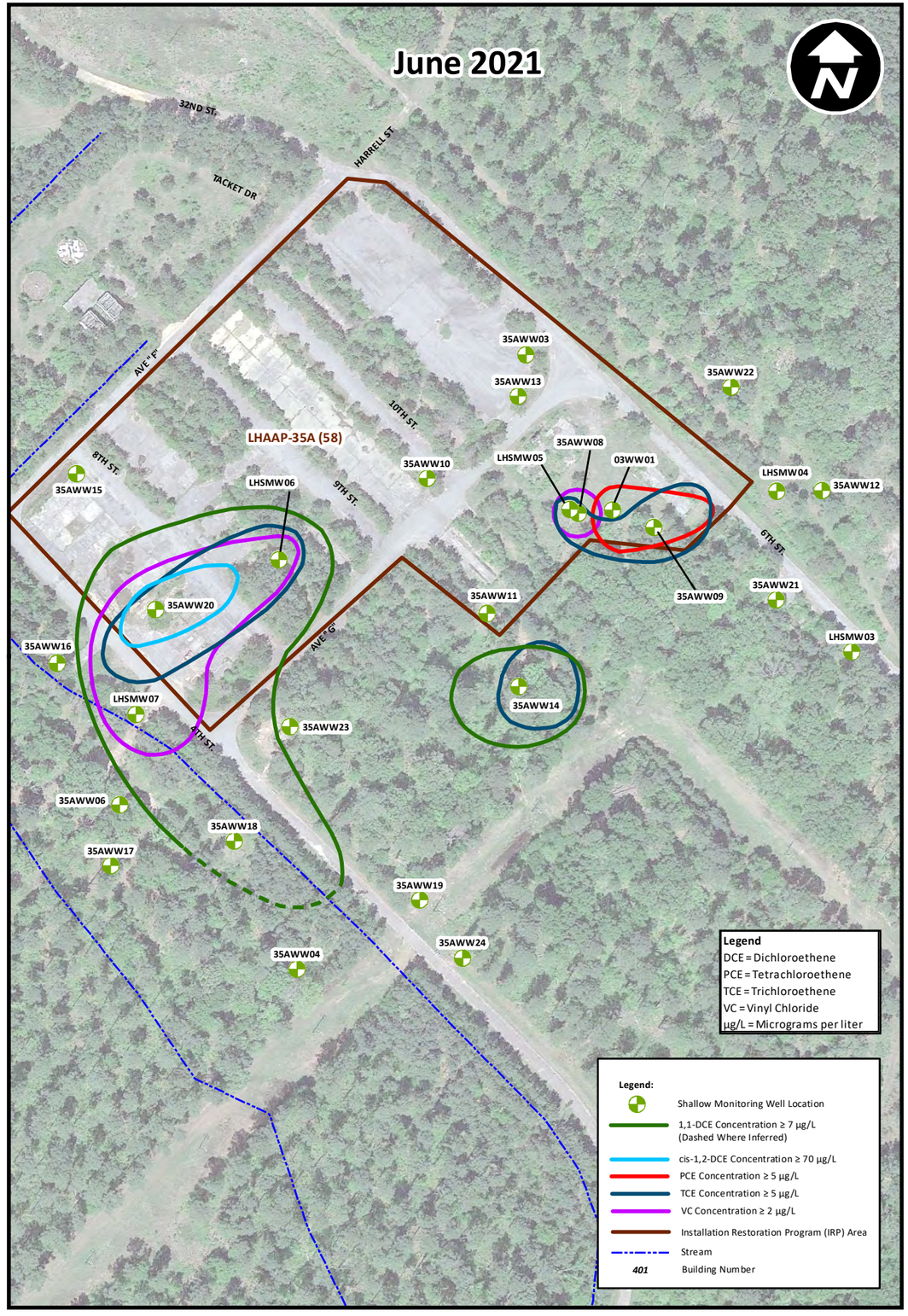

Lateral Extent of Plume Comparison (October 2016 and June 2021)

Figure 9

Year 7 Annual Remedial Action Operation Report (December 2020 – June 2021)
LHAAP-35A (58), Shops Area
Longhorn Army Ammunition Plant
Karnack, Texas

DRAWN BY: MRM

DATE: 10/14/2021

SCALE: As Shown

PROJECT NO: NWO1312.0150.012.0001.03

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TABLES

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Table 1
Groundwater Elevation Data
LHAAP-58, Longhorn Army Ammunition Plant, Karnack, Texas
Year 7 RA(O) Report

Well Identification	Aquifer	Sampling Date	Screen Intervals (ft from Top of Casing)	Top of Casing Elevation (ft)	Depth to Water (ft from Top of Casing)	Groundwater Elevation (ft above msl)
03WW01	Shallow	10/9/2013	22.51-32.51	216.29	29.51	186.78
		1/29/2014	22.51-32.51	216.29	29.86	186.43
		5/20/2014	22.51-32.51	216.29	29.72	186.57
		10/27/2014	22.51-32.51	216.29	29.81	186.48
		1/20/2015	22.51-32.51	216.29	29.75	186.54
		4/14/2015	22.51-32.51	216.29	29.60	186.69
		7/7/2015	22.51-32.51	216.29	29.25	187.04
		10/7/2015	22.51-32.51	216.29	29.60	186.69
		4/12/2016	22.51-32.51	216.29	29.36	186.93
		10/3/2016	22.51-32.51	216.29	29.09	187.20
		12/18/2019	22.51-32.51	216.29	29.80	186.49
		7/18/2018	22.51-32.51	216.29	29.96	186.33
		12/11/2018	22.51-32.51	216.29	30.00	186.29
		6/3/2019	22.51-32.51	216.29	29.45	186.84
		12/18/2019	22.51-32.51	216.29	29.80	186.49
		6/23/2020	22.51-32.51	216.29	29.30	186.99
		12/1/2020	22.51-32.51	216.29	29.33	186.96
		6/2/2021	22.51-32.51	216.29	28.88	187.41
1004TW001	Shallow	5/28/2014	NA	NM	18.05	NC
		10/30/2014	NA	NM	18.40	NC
		7/8/2015	NA	NM	17.00	NC
		4/14/2016	NA	NM	17.75	NC
		10/4/2016	NA	NM	17.46	NC
		11/17/2017	NA	NM	17.84	NC
1004TW006	Shallow	1/31/2014	NA	NM	19.17	NC
35AWW01	Intermediate	10/11/2013	63.07-73.07	218.03	40.58	177.45
		1/31/2014	63.07-73.07	218.03	40.21	177.82
		5/29/2014	63.07-73.07	218.03	39.31	178.72
		10/31/2014	63.07-73.07	218.03	40.17	177.86
		1/27/2015	63.07-73.07	218.03	39.40	178.63
		4/10/2015	63.07-73.07	218.03	40.06	177.97
		7/10/2015	63.07-73.07	218.03	39.10	178.93
		10/6/2015	63.07-73.07	218.03	39.79	178.24
		4/12/2016	63.07-73.07	218.03	38.86	179.17
		10/5/2016	63.07-73.07	218.03	39.01	179.02
		12/20/2019	63.07-73.07	218.03	45.81	172.22
		7/2/2018	63.07-73.07	218.03	43.00	175.03
		12/13/2018	63.07-73.07	218.03	40.27	177.76
		6/10/2019	63.07-73.07	218.03	44.52	173.51
		12/18/2019	63.07-73.07	218.03	45.18	172.85
		6/25/2020	63.07-73.07	218.03	44.22	173.81
		12/7/2020	63.07-73.07	218.03	44.75	173.28
		6/1/2021	63.07-73.07	218.03	44.50	173.53
35AWW02	Deep	10/22/2013	128.59 - 138.59	218.05	42.30	175.75
		4/13/2016	128.59 - 138.59	218.05	42.26	175.79
		10/4/2016	128.59 - 138.59	218.05	42.70	175.35

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Well Identification	Aquifer	Sampling Date	Screen Intervals (ft from Top of Casing)	Top of Casing Elevation (ft)	Depth to Water (ft from Top of Casing)	Groundwater Elevation (ft above msl)
35AWW03	Shallow	2/1/2014	11.93 - 21.93	219.66	DRY	NC
		5/29/2014	11.93 - 21.93	219.66	DRY	NC
		10/30/2014	11.93 - 21.93	219.66	DRY	NC
		7/9/2015	11.93 - 21.93	219.66	DRY	NC
		4/13/2016	11.93 - 21.93	219.66	DRY	NC
		10/4/2016	11.93 - 21.93	219.66	DRY	NC
		11/16/2017	11.93 - 21.93	219.66	DRY	NC
35AWW04	Shallow	4/14/2016	16.51 - 26.51	220.66	DRY	NC
		10/4/2016	16.51 - 26.51	220.66	DRY	NC
35AWW05	Intermediate	10/16/2013	62.4 - 72.4	221.41	43.70	177.71
		2/1/2014	62.4 - 72.4	221.41	37.70	183.71
		5/22/2014	62.4 - 72.4	221.41	43.12	178.29
		10/21/2014	62.4 - 72.4	221.41	43.60	177.81
		1/23/2015	62.4 - 72.4	221.41	42.90	178.51
		4/8/2015	62.4 - 72.4	221.41	42.55	178.86
		7/10/2015	62.4 - 72.4	221.41	42.67	178.74
		10/5/2015	62.4 - 72.4	221.41	43.31	178.10
		4/14/2016	62.4 - 72.4	221.41	41.40	180.01
		10/5/2016	62.4 - 72.4	221.41	42.43	178.98
		11/13/2017	62.4 - 72.4	221.41	45.72	175.69
		7/2/2018	62.4 - 72.4	221.41	45.47	175.94
		12/12/2018	62.4 - 72.4	221.41	43.67	177.74
		6/10/2019	62.4 - 72.4	221.41	46.20	175.21
		12/3/2020	62.4 - 72.4	221.41	46.71	174.70
		6/2/2021	62.4 - 72.4	221.41	46.25	175.16
35AWW06	Shallow	10/15/2013	19.05 - 29.05	220.43	21.50	198.93
		1/30/2014	19.05 - 29.05	220.43	21.14	199.29
		5/21/2014	19.05 - 29.05	220.43	20.65	199.78
		10/29/2014	19.05 - 29.05	220.43	20.55	199.88
		1/28/2015	19.05 - 29.05	220.43	20.58	199.85
		4/15/2015	19.05 - 29.05	220.43	18.95	201.48
		7/7/2015	19.05 - 29.05	220.43	19.47	200.96
		10/7/2015	19.05 - 29.05	220.43	19.97	200.46
		4/11/2016	19.05 - 29.05	220.43	19.95	200.48
		10/3/2016	19.05 - 29.05	220.43	19.53	200.90
		9/11/2019	19.05 - 29.05	220.43	18.90	201.53
		12/19/2019	19.05 - 29.05	220.43	19.32	201.11
		3/24/2020	19.05 - 29.05	220.43	18.68	201.75
		9/26/2018	19.05 - 29.05	220.43	20.35	200.08
		12/11/2018	19.05 - 29.05	220.43	19.96	200.47
		3/19/2019	19.05 - 29.05	220.43	19.50	200.93
		6/4/2019	19.05 - 29.05	220.43	18.95	201.48
		9/11/2019	19.05 - 29.05	220.43	18.90	201.53
		12/19/2019	19.05 - 29.05	220.43	19.32	201.11
		3/24/2020	19.05 - 29.05	220.43	18.68	201.75
		4/7/2020	19.05 - 29.05	220.43	18.77	201.66
		6/24/2020	19.05 - 29.05	220.43	18.45	201.98
		12/1/2020	19.05 - 29.05	220.43	18.55	201.88
		6/3/2021	19.05 - 29.05	220.43	18.16	202.27

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35AWW07R	Shallow	10/16/2013	21.55 - 31.25	212.11	27.90	184.21
		2/3/2014	21.55 - 31.25	212.11	28.90	183.21
		5/29/2014	21.55 - 31.25	212.11	25.83	186.28
		10/30/2014	21.55 - 31.25	212.11	26.55	185.56
		7/10/2015	21.55 - 31.25	212.11	24.08	188.03
		4/13/2016	21.55 - 31.25	212.11	24.34	187.77
		10/4/2016	21.55 - 31.25	212.11	24.82	187.29
		11/17/2017	21.55 - 31.25	212.11	26.14	185.97
35AWW08	Shallow	10/9/2013	21.83 - 31.83	216.95	29.80	187.15
		1/29/2014	21.83 - 31.83	216.95	29.30	187.65
		5/20/2014	21.83 - 31.83	216.95	29.55	187.40
		10/27/2014	21.83 - 31.83	216.95	29.43	187.52
		1/20/2015	21.83 - 31.83	216.95	29.45	187.50
		4/14/2015	21.83 - 31.83	216.95	29.35	187.60
		7/7/2015	21.83 - 31.83	216.95	29.05	187.90
		10/7/2015	21.83 - 31.83	216.95	29.41	187.54
		4/12/2016	21.83 - 31.83	216.95	29.20	187.75
		10/3/2016	21.83 - 31.83	216.95	29.00	187.95
		12/18/2019	21.83 - 31.83	216.95	29.00	187.95
		7/18/2018	21.83 - 31.83	216.95	29.45	187.50
		12/11/2018	21.83 - 31.83	216.95	29.55	187.40
		6/3/2019	21.83 - 31.83	216.95	28.95	188.00
		12/18/2019	21.83 - 31.83	216.95	29.00	187.95
		6/23/2020	21.83 - 31.83	216.95	29.22	187.73
		12/1/2020	21.83 - 31.83	216.95	28.58	188.37
		6/2/2021	21.83 - 31.83	216.95	28.28	188.67
35AWW09	Shallow	10/10/2013	26.69 - 41.29	217.47	32.21	185.26
		1/29/2014	26.69 - 41.29	217.47	32.32	185.15
		5/20/2014	26.69 - 41.29	217.47	29.87	187.60
		10/27/2014	26.69 - 41.29	217.47	32.15	185.32
		1/21/2015	26.69 - 41.29	217.47	32.04	185.43
		4/14/2015	26.69 - 41.29	217.47	31.38	186.09
		7/7/2015	26.69 - 41.29	217.47	30.87	186.60
		10/7/2015	26.69 - 41.29	217.47	31.46	186.01
		4/12/2016	26.69 - 41.29	217.47	31.02	186.45
		10/3/2016	26.69 - 41.29	217.47	31.00	186.47
		12/18/2019	26.69 - 41.29	217.47	32.22	185.25
		7/16/2018	26.69 - 41.29	217.47	32.22	185.25
		12/11/2018	26.69 - 41.29	217.47	32.21	185.26
		6/3/2019	26.69 - 41.29	217.47	31.60	185.87
		12/18/2019	26.69 - 41.29	217.47	32.22	185.25
		6/23/2020	26.69 - 41.29	217.47	31.35	186.12
		12/7/2020	26.69 - 41.29	217.47	31.55	185.92
		6/2/2021	26.69 - 41.29	217.47	30.88	186.59

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35AWW10	Shallow	10/10/2013	18.16 - 32.76	220.76	20.15	200.61
		1/29/2014	18.16 - 32.76	220.76	18.85	201.91
		5/20/2014	18.16 - 32.76	220.76	17.10	203.66
		10/28/2014	18.16 - 32.76	220.76	19.55	201.21
		1/27/2015	18.16 - 32.76	220.76	17.78	202.98
		4/14/2015	18.16 - 32.76	220.76	16.45	204.31
		7/7/2015	18.16 - 32.76	220.76	17.17	203.59
		10/7/2015	18.16 - 32.76	220.76	19.45	201.31
		4/13/2016	18.16 - 32.76	220.76	17.41	203.35
		10/3/2016	18.16 - 32.76	220.76	18.98	201.78
		12/19/2019	18.16 - 32.76	220.76	19.72	201.04
		7/12/2018	18.16 - 32.76	220.76	18.95	201.81
		12/12/2018	18.16 - 32.76	220.76	18.75	202.01
		6/4/2019	18.16 - 32.76	220.76	16.05	204.71
		12/19/2019	18.16 - 32.76	220.76	19.72	201.04
		6/29/2020	18.16 - 32.76	220.76	17.25	203.51
		12/7/2020	18.16 - 32.76	220.76	18.65	202.11
		6/1/2021	18.16 - 32.76	220.76	15.55	205.21
35AWW11	Shallow	10/15/2013	22.24 - 36.84	220.15	31.36	188.79
		2/3/2014	22.24 - 36.84	220.15	31.80	188.35
		5/21/2014	22.24 - 36.84	220.15	31.55	188.60
		10/29/2014	22.24 - 36.84	220.15	31.73	188.42
		1/27/2015	22.24 - 36.84	220.15	31.60	188.55
		4/14/2015	22.24 - 36.84	220.15	31.25	188.90
		7/8/2015	22.24 - 36.84	220.15	30.72	189.43
		10/7/2015	22.24 - 36.84	220.15	31.20	188.95
		4/12/2016	22.24 - 36.84	220.15	31.03	189.12
		10/3/2016	22.24 - 36.84	220.15	30.48	189.67
		9/11/2019	22.24 - 36.84	220.15	29.46	190.69
		12/18/2019	22.24 - 36.84	220.15	29.68	190.47
		3/24/2020	22.24 - 36.84	220.15	29.03	191.12
		9/27/2018	22.24 - 36.84	220.15	31.10	189.05
		12/11/2018	22.24 - 36.84	220.15	31.05	189.10
		3/19/2019	22.24 - 36.84	220.15	30.00	190.15
		6/3/2019	22.24 - 36.84	220.15	29.27	190.88
		9/11/2019	22.24 - 36.84	221.15	29.46	191.69
		12/18/2019	22.24 - 36.84	220.15	29.68	190.47
		3/24/2020	22.24 - 36.84	221.15	29.03	192.12
		6/23/2020	22.24 - 36.84	221.15	29.11	192.04
		12/1/2020	22.24 - 36.84	221.15	28.95	192.20
		6/2/2021	22.24 - 36.84	221.15	28.30	192.85

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35AWW12	Shallow	10/18/2013	22.17 - 36.77	215.99	30.05	185.94
		1/31/2014	22.17 - 36.77	215.99	28.10	187.89
		5/29/2014	22.17 - 36.77	215.99	29.00	186.99
		10/30/2014	22.17 - 36.77	215.99	30.11	185.88
		1/28/2015	22.17 - 36.77	215.99	29.45	186.54
		4/7/2015	22.17 - 36.77	215.99	28.70	187.29
		7/9/2015	22.17 - 36.77	215.99	28.22	187.77
		10/5/2015	22.17 - 36.77	215.99	29.35	186.64
		4/12/2016	22.17 - 36.77	215.99	28.54	187.45
		10/5/2016	22.17 - 36.77	215.99	28.87	187.12
		12/18/2019	22.17 - 36.77	215.99	30.33	185.66
		6/29/2018	22.17 - 36.77	215.99	30.05	185.94
		12/14/2018	22.17 - 36.77	215.99	29.66	186.33
		6/10/2019	22.17 - 36.77	215.99	28.59	187.40
		12/18/2019	22.17 - 36.77	215.99	30.33	185.66
		6/25/2020	22.17 - 36.77	215.99	28.95	187.04
		12/7/2020	22.17 - 36.77	215.99	29.72	186.27
		6/2/2021	22.17 - 36.77	215.99	28.00	187.99
35AWW13	Shallow	10/11/2013	24.72 - 39.32	219.12	25.07	194.05
		2/3/2014	24.72 - 39.32	219.12	24.91	194.21
		5/22/2014	24.72 - 39.32	219.12	23.80	195.32
		10/21/2014	24.72 - 39.32	219.12	24.85	194.27
		1/23/2015	24.72 - 39.32	219.12	24.70	194.42
		4/8/2015	24.72 - 39.32	219.12	23.72	195.40
		7/9/2015	24.72 - 39.32	219.12	23.39	195.73
		10/6/2015	24.72 - 39.32	219.12	24.61	194.51
		4/13/2016	24.72 - 39.32	219.12	24.10	195.02
		10/6/2016	24.72 - 39.32	219.12	24.41	194.71
		12/18/2019	24.72 - 39.32	219.12	25.05	194.07
		6/29/2018	24.72 - 39.32	219.12	24.37	194.75
		12/11/2018	24.72 - 39.32	219.12	25.03	194.09
		6/7/2019	24.72 - 39.32	219.12	23.08	196.04
		12/18/2019	24.72 - 39.32	219.12	25.05	194.07
		6/29/2020	24.72 - 39.32	219.12	23.32	195.80
		12/7/2020	24.72 - 39.32	219.12	24.61	194.51
		6/1/2021	24.72 - 39.32	219.12	22.95	196.17

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35AWW14	Shallow	10/18/2013	17.06 - 31.76	218.41	30.80	187.61
		1/31/2014	17.06 - 31.76	218.41	30.95	187.46
		5/28/2014	17.06 - 31.76	218.41	30.57	187.84
		10/29/2014	17.06 - 31.76	218.41	31.00	187.41
		1/20/2015	17.06 - 31.76	218.41	30.85	187.56
		4/7/2015	17.06 - 31.76	218.41	30.48	187.93
		7/8/2015	17.06 - 31.76	218.41	29.75	188.66
		10/1/2015	17.06 - 31.76	218.41	30.19	188.22
		4/12/2016	17.06 - 31.76	218.41	29.67	188.74
		10/5/2016	17.06 - 31.76	218.41	29.31	189.10
		12/19/2019	17.06 - 31.76	218.41	29.55	188.86
		7/18/2018	17.06 - 31.76	218.41	29.58	188.83
		12/13/2018	17.06 - 31.76	218.41	29.55	188.86
		6/7/2019	17.06 - 31.76	218.41	28.65	189.76
		12/19/2019	17.06 - 31.76	218.41	29.55	188.86
		6/25/2020	17.06 - 31.76	218.41	28.77	189.64
		12/7/2020	17.06 - 31.76	218.41	30.75	187.66
		6/1/2021	17.06 - 31.76	218.41	27.80	190.61
35AWW15	Shallow	10/16/2013	25.67 - 40.37	222.97	20.65	202.32
		2/1/2014	25.67 - 40.37	222.97	20.40	202.57
		5/28/2014	25.67 - 40.37	222.97	19.64	203.33
		10/21/2014	25.67 - 40.37	222.97	20.18	202.79
		1/23/2015	25.67 - 40.37	222.97	20.15	202.82
		4/10/2015	25.67 - 40.37	222.97	19.31	203.66
		7/10/2015	25.67 - 40.37	222.97	18.95	204.02
		10/6/2015	25.67 - 40.37	222.97	19.56	203.41
		4/14/2016	25.67 - 40.37	222.97	19.51	203.46
		10/5/2016	25.67 - 40.37	222.97	19.34	203.63
		12/20/2019	25.67 - 40.37	222.97	19.87	203.10
		7/18/2018	25.67 - 40.37	222.97	19.50	203.47
		12/12/2018	25.67 - 40.37	222.97	16.55	206.42
		6/7/2019	25.67 - 40.37	222.97	17.77	205.20
		12/20/2019	25.67 - 40.37	222.97	19.87	203.10
		6/25/2020	25.67 - 40.37	222.97	17.93	205.04
		12/7/2020	25.67 - 40.37	222.97	17.05	205.92
		6/1/2021	25.67 - 40.37	222.97	16.95	206.02
35AWW16	Shallow	10/22/2013	21.75 - 36.45	220.88	19.58	201.30
		1/31/2014	21.75 - 36.45	220.88	19.28	201.60
		5/28/2014	21.75 - 36.45	220.88	18.60	202.28
		10/30/2014	21.75 - 36.45	220.88	19.96	200.92
		1/27/2015	21.75 - 36.45	220.88	18.90	201.98
		4/7/2015	21.75 - 36.45	220.88	18.22	202.66
		7/9/2015	21.75 - 36.45	220.88	17.79	203.09
		10/6/2015	21.75 - 36.45	220.88	18.20	202.68
		4/12/2016	21.75 - 36.45	220.88	18.43	202.45
		10/4/2016	21.75 - 36.45	220.88	17.90	202.98
		12/19/2019	21.75 - 36.45	220.88	18.00	202.88
		6/29/2018	21.75 - 36.45	220.88	18.10	202.78
		12/12/2018	21.75 - 36.45	220.88	18.26	202.62
		6/10/2019	21.75 - 36.45	220.88	17.30	203.58
		12/19/2019	21.75 - 36.45	220.88	18.00	202.88
		6/25/2020	21.75 - 36.45	220.88	16.68	204.20
		12/1/2020	21.75 - 36.45	220.88	17.25	203.63
		6/1/2021	21.75 - 36.45	220.88	16.28	204.60

Table 1
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Well Identification	Aquifer	Sampling Date	Screen Intervals (ft from Top of Casing)	Top of Casing Elevation (ft)	Depth to Water (ft from Top of Casing)	Groundwater Elevation (ft above msl)
35AWW17	Shallow	10/18/2013	26.97 - 41.67	221.44	28.00	193.44
		2/1/2014	26.97 - 41.67	221.44	36.90	184.54
		5/29/2014	26.97 - 41.67	221.44	26.60	194.84
		10/31/2014	26.97 - 41.67	221.44	26.80	194.64
		1/28/2015	26.97 - 41.67	221.44	26.00	195.44
		4/10/2015	26.97 - 41.67	221.44	25.65	195.79
		7/10/2015	26.97 - 41.67	221.44	25.42	196.02
		10/5/2015	26.97 - 41.67	221.44	25.93	195.51
		4/11/2016	26.97 - 41.67	221.44	25.60	195.84
		10/3/2016	26.97 - 41.67	221.44	25.30	196.14
		12/18/2019	26.97 - 41.67	221.44	24.00	197.44
		6/29/2018	26.97 - 41.67	221.44	25.07	196.37
		12/17/2018	26.97 - 41.67	221.44	24.78	196.66
		6/10/2019	26.97 - 41.67	221.44	24.28	197.16
		12/18/2019	26.97 - 41.67	221.44	24.00	197.44
		6/29/2020	26.97 - 41.67	221.44	23.40	198.04
		12/1/2020	26.97 - 41.67	221.44	23.12	198.32
		6/3/2021	26.97 - 41.67	221.44	23.02	198.42
35AWW18	Shallow	10/18/2013	26.85 - 41.55	221.75	28.35	193.40
		2/1/2014	26.85 - 41.55	221.75	27.90	193.85
		5/29/2014	26.85 - 41.55	221.75	27.65	194.10
		10/31/2014	26.85 - 41.55	221.75	27.50	194.25
		1/28/2015	26.85 - 41.55	221.75	27.11	194.64
		4/10/2015	26.85 - 41.55	221.75	25.90	195.85
		7/10/2015	26.85 - 41.55	221.75	26.42	195.33
		10/5/2015	26.85 - 41.55	221.75	26.67	195.08
		4/11/2016	26.85 - 41.55	221.75	26.40	195.35
		10/5/2016	26.85 - 41.55	221.75	25.93	195.82
		12/18/2019	26.85 - 41.55	221.75	24.82	196.93
		6/29/2018	26.85 - 41.55	221.75	24.55	197.20
		12/17/2018	26.85 - 41.55	221.75	25.59	196.16
		6/4/2019	26.85 - 41.55	221.75	24.85	196.90
		12/18/2019	26.85 - 41.55	221.75	24.82	196.93
		6/25/2020	26.85 - 41.55	221.75	24.17	197.58
		12/1/2020	26.85 - 41.55	221.75	23.95	197.80
		6/1/2021	26.85 - 41.55	221.75	23.63	198.12
35AWW19	Shallow	10/22/2013	16.89 - 31.39	219.71	30.65	189.06
		1/31/2014	16.89 - 31.39	219.71	30.68	189.03
		5/28/2014	16.89 - 31.39	219.71	30.30	189.41
		10/29/2014	16.89 - 31.39	219.71	30.45	189.26
		1/20/2015	16.89 - 31.39	219.71	30.15	189.56
		4/7/2015	16.89 - 31.39	219.71	29.84	189.87
		7/8/2015	16.89 - 31.39	219.71	29.16	190.55
		10/1/2015	16.89 - 31.39	219.71	29.46	190.25
		4/12/2016	16.89 - 31.39	219.71	28.87	190.84
		10/5/2016	16.89 - 31.39	219.71	28.13	191.58
		9/11/2019	16.89 - 31.39	219.71	25.55	194.16
		12/18/2019	16.89 - 31.39	219.71	25.90	193.81
		3/24/2020	16.89 - 31.39	219.71	26.00	192.34
		9/27/2018	16.89 - 31.39	219.71	27.79	191.92
		12/10/2018	16.89 - 31.39	219.71	27.58	192.13
		3/19/2019	16.89 - 31.39	219.71	27.00	192.71
		6/3/2019	16.89 - 31.39	219.71	26.45	193.26
		9/11/2019	16.89 - 31.39	219.71	25.55	194.16
		12/18/2019	16.89 - 31.39	219.71	25.90	193.81
		3/24/2020	16.89 - 31.39	219.71	26.00	193.71
		6/24/2020	16.89 - 31.39	223.05	24.92	198.13
		12/3/2020	16.89 - 31.39	223.05	24.63	198.42
		6/3/2021	16.89 - 31.39	223.05	23.98	199.07

Table 1
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Well Identification	Aquifer	Sampling Date	Screen Intervals (ft from Top of Casing)	Top of Casing Elevation (ft)	Depth to Water (ft from Top of Casing)	Groundwater Elevation (ft above msl)
35AWW20	Shallow	10/15/2013	20.94 - 35.64	223.05	21.12	201.93
		2/3/2014	20.94 - 35.64	223.05	23.12	199.93
		5/21/2014	20.94 - 35.64	223.05	20.18	202.87
		10/29/2014	20.94 - 35.64	223.05	20.50	202.55
		1/27/2015	20.94 - 35.64	223.05	20.50	202.55
		4/15/2015	20.94 - 35.64	223.05	19.45	203.60
		7/8/2015	20.94 - 35.64	223.05	18.95	204.10
		10/8/2015	20.94 - 35.64	223.05	19.67	203.38
		4/13/2016	20.94 - 35.64	223.05	19.69	203.36
		10/4/2016	20.94 - 35.64	223.05	19.38	203.67
		9/11/2019	20.94 - 35.64	223.05	18.20	204.85
		12/19/2019	20.94 - 35.64	223.05	19.20	203.85
		3/24/2020	20.94 - 35.64	223.05	18.15	204.90
		9/26/2018	20.94 - 35.64	223.05	19.75	203.30
		12/10/2018	20.94 - 35.64	223.05	20.03	203.02
		3/19/2019	20.94 - 35.64	223.05	18.76	204.29
		6/4/2019	20.94 - 35.64	223.05	17.95	205.10
		9/11/2019	20.94 - 35.64	223.05	18.20	204.85
		12/19/2019	20.94 - 35.64	223.05	19.20	203.85
		3/24/2020	20.94 - 35.64	223.05	18.15	204.90
		6/24/2020	20.94 - 35.64	223.05	18.65	204.40
		12/3/2020	20.94 - 35.64	223.05	18.58	204.47
		6/3/2021	20.94 - 35.64	223.05	16.95	206.10
35AWW21	Shallow	10/16/2013	27.56 - 42.26	219.05	34.36	184.69
		2/4/2014	27.56 - 42.26	219.05	33.55	185.50
		5/22/2014	27.56 - 42.26	219.05	32.40	186.65
		10/21/2014	27.56 - 42.26	219.05	33.90	185.15
		1/23/2015	27.56 - 42.26	219.05	33.06	185.99
		4/8/2015	27.56 - 42.26	219.05	31.73	187.32
		7/9/2015	27.56 - 42.26	219.05	31.11	187.94
		10/6/2015	27.56 - 42.26	219.05	32.74	186.31
		4/13/2016	27.56 - 42.26	219.05	31.44	187.61
		10/4/2016	27.56 - 42.26	219.05	32.10	186.95
		12/20/2019	27.56 - 42.26	219.05	34.18	184.87
		6/29/2018	27.56 - 42.26	219.05	33.77	185.28
		12/13/2018	27.56 - 42.26	219.05	32.90	186.15
		6/10/2019	27.56 - 42.26	219.05	31.38	187.67
		12/20/2019	27.56 - 42.26	219.05	34.18	184.87
		6/29/2020	27.56 - 42.26	219.05	32.28	186.77
		12/7/2020	27.56 - 42.26	219.05	33.33	185.72
		6/1/2021	27.56 - 42.26	219.05	30.70	188.35

Table 1
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Well Identification	Aquifer	Sampling Date	Screen Intervals (ft from Top of Casing)	Top of Casing Elevation (ft)	Depth to Water (ft from Top of Casing)	Groundwater Elevation (ft above msl)
35AWW22	Shallow	10/22/2013	22.27 - 36.77	219.14	32.13	187.01
		1/31/2014	22.27 - 36.77	219.14	32.08	187.06
		5/28/2014	22.27 - 36.77	219.14	32.00	187.14
		10/29/2014	22.27 - 36.77	219.14	32.45	186.69
		1/20/2015	22.27 - 36.77	219.14	33.32	185.82
		4/8/2015	22.27 - 36.77	219.14	32.09	187.05
		7/9/2015	22.27 - 36.77	219.14	31.72	187.42
		10/5/2015	22.27 - 36.77	219.14	32.30	186.84
		4/12/2016	22.27 - 36.77	219.14	32.00	187.14
		10/5/2016	22.27 - 36.77	219.14	31.91	187.23
		12/18/2019	22.27 - 36.77	219.14	32.87	186.27
		7/18/2018	22.27 - 36.77	219.14	33.80	185.34
		12/14/2018	22.27 - 36.77	219.14	32.72	186.42
		6/10/2019	22.27 - 36.77	219.14	32.40	186.74
		12/18/2019	22.27 - 36.77	219.14	32.87	186.27
		6/24/2020	22.77 - 36.77	219.14	32.20	186.94
		12/7/2020	22.77 - 36.77	219.14	32.27	186.87
		6/2/2021	22.77 - 36.77	219.14	32.10	187.04
35AWW23	Shallow	7/17/2018	28.2 - 43.2	223.07	23.55	199.52
		12/10/2018	28.2 - 43.2	223.07	20.71	202.36
		6/3/2019	28.2 - 43.2	223.07	23.97	199.10
		9/11/2019	28.2 - 43.2	223.07	22.00	201.07
		12/18/2019	28.2 - 43.2	223.07	23.45	199.62
		3/24/2020	28.2 - 43.2	223.07	22.60	200.47
		6/24/2020	28.2 - 43.2	223.07	22.44	200.63
		12/3/2020	28.2 - 43.2	223.07	22.55	200.52
		6/3/2021	28.2 - 43.2	223.07	23.05	200.02
35AWW24	Shallow	7/17/2018	25.10 - 35.10	219.04	26.60	192.44
		9/27/2018	25.10 - 35.10	219.04	20.11	198.93
		12/10/2018	25.10 - 35.10	219.04	26.75	192.29
		3/19/2019	25.10 - 35.10	219.04	26.06	192.98
		6/3/2019	25.10 - 35.10	219.04	25.47	193.57
		12/19/2019	25.10 - 35.10	219.04	25.09	193.95
		6/25/2020	25.10 - 35.10	219.04	24.25	194.79
		12/3/2020	25.10 - 35.10	219.04	23.85	195.19
		6/1/2021	25.10 - 35.10	219.04	23.15	195.89
LHSMW03	Shallow	10/9/2013	24.82 - 34.82	217.26	DRY	NC
		2/3/2014	24.82 - 34.82	217.26	31.00	186.26
		5/28/2014	24.82 - 34.82	217.26	29.40	187.86
		10/29/2014	24.82 - 34.82	217.26	31.20	186.06
		7/8/2015	24.82 - 34.82	217.26	28.21	189.05
		4/13/2016	24.82 - 34.82	217.26	28.75	188.51
		10/4/2016	24.82 - 34.82	217.26	29.51	187.75
		11/17/2017	24.82 - 34.82	217.26	31.36	185.90

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Well Identification	Aquifer	Sampling Date	Screen Intervals (ft from Top of Casing)	Top of Casing Elevation (ft)	Depth to Water (ft from Top of Casing)	Groundwater Elevation (ft above msl)
LHSMW04	Shallow	10/9/2013	21.11 - 31.11	216.95	DRY	NC
		1/31/2014	21.11 - 31.11	216.95	DRY	NC
		5/20/2014	21.11 - 31.11	216.95	DRY	NC
		10/30/2014	21.11 - 31.11	216.95	DRY	NC
		1/20/2015	21.11 - 31.11	216.95	DRY	NC
		4/7/2015	21.11 - 31.11	216.95	DRY	NC
		7/8/2015	21.11 - 31.11	216.95	DRY	NC
		10/1/2015	21.11 - 31.11	216.95	DRY	NC
		3/28/2016	21.11 - 31.11	216.95	29.72	187.23
		4/12/2016	21.11 - 31.11	216.95	29.65	187.30
		10/4/2016	21.11 - 31.11	216.95	DRY	NC
		12/19/2019	21.11 - 31.11	216.95	DRY	NC
		7/17/2018	21.11 - 31.11	216.95	DRY	NC
		12/11/2018	21.11 - 31.11	216.95	DRY	NC
		6/4/2019	21.11 - 31.11	216.95	DRY	NC
		12/19/2019	21.11 - 31.11	216.95	DRY	NC
		6/24/2020	21.11 - 31.11	216.95	DRY	NC
		12/3/2020	21.11 - 31.11	216.95	DRY	NC
		6/3/2021	21.11 - 31.11	216.95	DRY	NC
LHSMW05	Shallow	10/9/2013	14.32 - 24.32	217.59	DRY	NC
		1/31/2014	14.32 - 24.32	217.59	DRY	NC
		5/20/2014	14.32 - 24.32	217.59	DRY	NC
		10/30/2014	14.32 - 24.32	217.59	DRY	NC
		1/20/2015	14.32 - 24.32	217.59	DRY	NC
		4/7/2015	14.32 - 24.32	217.59	DRY	NC
		7/10/2015	14.32 - 24.32	217.59	DRY	NC
		10/1/2015	14.32 - 24.32	217.59	DRY	NC
		4/12/2016	14.32 - 24.32	217.59	DRY	NC
		10/4/2016	14.32 - 24.32	217.59	DRY	NC
LHSMW06	Shallow	10/16/2013	13.32 - 23.32	223.18	20.97	202.21
		1/30/2014	13.32 - 23.32	223.18	20.50	202.68
		5/28/2014	13.32 - 23.32	223.18	19.30	203.88
		10/29/2014	13.32 - 23.32	223.18	19.81	203.37
		1/20/2015	13.32 - 23.32	223.18	19.92	203.26
		4/7/2015	13.32 - 23.32	223.18	18.92	204.26
		7/8/2015	13.32 - 23.32	223.18	18.21	204.97
		10/1/2015	13.32 - 23.32	223.18	18.98	204.20
		4/12/2016	13.32 - 23.32	223.18	19.11	204.07
		10/5/2016	13.32 - 23.32	223.18	18.91	204.27
		11/16/2017	13.32 - 23.32	223.18	19.31	203.87
		7/2/2018	13.32 - 23.32	223.18	18.80	204.38
		12/13/2018	13.32 - 23.32	223.18	19.18	204.00
		6/7/2019	13.32 - 23.32	223.18	16.93	206.25
		12/20/2019	13.32 - 23.32	223.18	18.72	204.46
		6/25/2020	13.32 - 23.32	223.18	17.28	205.90
		12/3/2020	13.32 - 23.32	223.18	18.53	204.65
		6/3/2021	13.32 - 23.32	223.18	16.07	207.11

Table 1
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Well Identification	Aquifer	Sampling Date	Screen Intervals (ft from Top of Casing)	Top of Casing Elevation (ft)	Depth to Water (ft from Top of Casing)	Groundwater Elevation (ft above msl)
LHSMW07	Shallow	10/15/2013	19.73 - 29.73	221.27	20.55	200.72
		1/30/2014	19.73 - 29.73	221.27	20.25	201.02
		5/22/2014	19.73 - 29.73	221.27	19.55	201.72
		10/29/2014	19.73 - 29.73	221.27	19.63	201.64
		1/28/2015	19.73 - 29.73	221.27	20.53	200.74
		4/15/2015	19.73 - 29.73	221.27	18.75	202.52
		7/7/2015	19.73 - 29.73	221.27	18.27	203.00
		10/8/2015	19.73 - 29.73	221.27	18.94	202.33
		4/14/2016	19.73 - 29.73	221.27	18.97	202.30
		10/4/2016	19.73 - 29.73	221.27	18.58	202.69
		9/11/2019	19.73 - 29.73	221.27	17.84	203.43
		12/19/2019	19.73 - 29.73	221.27	18.52	202.75
		3/24/2020	19.73 - 29.73	221.27	17.55	202.52
		9/26/2018	19.73 - 29.73	221.27	19.07	202.20
		12/10/2018	19.73 - 29.73	221.27	19.21	202.06
		3/19/2019	19.73 - 29.73	221.27	18.32	202.95
		6/3/2019	19.73 - 29.73	221.27	17.68	203.59
		9/11/2019	19.73 - 29.73	221.27	17.84	203.43
		12/19/2019	19.73 - 29.73	221.27	18.52	202.75
		3/24/2020	19.73 - 29.73	221.27	17.55	203.72
		6/24/2020	19.73 - 29.73	221.27	17.22	204.05
		12/3/2020	19.73 - 29.73	221.27	17.88	203.39
		6/2/2021	19.73 - 29.73	221.27	16.57	204.70

Notes:
ft - feet
msl = mean sea level
NA - not available
NC - not calculated
NM - not measured

Table 2. Eastern Plume Semi-Annual Analytical Data, December 2020 and June 2021
LHAAP-58, Longhorn Army Ammunition Plant, Karnack, Texas
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Location ID: / Sample Date:	Units	MCL/MSC	03WW01_120120 12/1/20	03WW01_060221 6/02/21	35AWW01_120720 12/7/20	35AWW01_060121 6/01/21	35AWW01_060121_a 6/01/21	35AWW08_120120 12/1/20	35AWW08_060221 6/02/21	35AWW09_120720 12/7/20	35AWW09_060221 6/02/21	35AWW09_060221_a 6/02/21	35AWW10_120720 12/7/20	35AWW10_120720-a 12/7/20	35AWW10_060121 6/01/21	35AWW12_120720 12/7/20
			Site 58 - E, inside site boundary.	Site 58 - E, inside site boundary.	Site 58 - E, inside site boundary.	Site 58 - E, inside site boundary.	Site 58 - E, inside site boundary. Field Duplicate.	Site 58 - E, inside site boundary.	Site 58 - E, inside site boundary.	Site 58 - E, inside site boundary.	Site 58 - E, inside site boundary.	Site 58 - E, inside site boundary. Field Duplicate	Site 58 - ESE, inside site boundary.	Site 58 - ESE, inside site boundary. Field Duplicate.	Site 58 - ESE, inside site boundary.	Site 58 - E, outside site boundary.
		Location Depth	Shallow	Shallow	Intermediate	Intermediate	Intermediate	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow
		Lab Package	HS20120090	HS21060181	HS20120479	HS21060181	HS21060181	HS20120090	HS21060181	HS20120479	HS21060181	HS21060181	HS20120479	HS20120479	HS21060181	HS20120479
Total Organic Carbon (415.1/SM5310C)																
Total Organic Carbon	mg/L	NV	**99.9**	**103**	NA	NA	NA	**165**	**119**	NA	**7.50**	**7.68**	NA	NA	**4.69**	NA
Volatile Organic Compounds (8260C)																
1,1,1,2-Tetrachloroethane	µg/L	110	< 5.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 5.0 U	< 25 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,1,1-Trichloroethane	µg/L	200	< 5.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 5.0 U	< 12 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,1,2,2-Tetrachloroethane	µg/L	14	< 5.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 5.0 U	< 25 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U
1,1,2-Trichloroethane	µg/L	5	< 5.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 5.0 U	< 25 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U
1,1-Dichloroethane	µg/L	10,000	< 5.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 5.0 U	< 12 U	< 0.5 U	**0.57 J**	**0.63 J**	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U
1,1-Dichloroethene	µg/L	7	< 5.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 5.0 U	< 12 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,1-Dichloropropene	µg/L	2.9	< 5.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 5.0 U	< 25 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 0.5 U	< 1.0 U	< 1.0 U
1,2,3-Trichlorobenzene	µg/L	310	< 10 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 10 U	< 25 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,2,3-Trichloropropane	µg/L	0.041	< 10 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 10 U	< 25 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,2,4-Trichlorobenzene	µg/L	70	< 10 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 10 U	< 25 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,2,4-Trimethylbenzene	µg/L	5,100	< 10 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 10 U	< 25 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.5 U
1,2-Dibromo-3-chloropropane	µg/L	0.2	< 5.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 5.0 U	< 12 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,2-Dibromoethane	µg/L	0.05	< 5.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 5.0 U	< 12 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,2-Dichlorobenzene	µg/L	600	< 10 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 10 U	< 25 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,2-Dichloroethane	µg/L	5	< 5.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 5.0 U	< 12 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,2-Dichloropropane	µg/L	5	< 5.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 5.0 U	< 25 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U
1,3,5-Trimethylbenzene	µg/L	5,100	< 5.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 5.0 U	< 25 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 0.5 U	< 1.0 U	< 1.0 U
1,3-Dichlorobenzene	µg/L	3,100	< 10 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 10 U	< 25 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,3-Dichloropropane	µg/L	29	< 10 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 10 U	< 25 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.5 U
1,4-Dichlorobenzene	µg/L	75	< 10 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 10 U	< 25 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
2,2-Dichloropropane	µg/L	42	< 5.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 5.0 U	< 12 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
2-Butanone	µg/L	61,000	< 10 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 10 U	< 25 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
2-Chlorotoluene	µg/L	2,000	< 10 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 10 U	< 25 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.5 U
2-Hexanone	µg/L	6,100	< 20 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 20 U	< 50 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U
4-Chlorotoluene	µg/L	2,000	< 10 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 10 U	< 25 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
4-Isopropyltoluene	µg/L	10,000	< 10 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 10 U	< 25 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.5 U
4-Methyl-2-pentanone	µg/L	8,200	< 20 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 20 U	< 50 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U
Acetone	µg/L	92,000	< 10 U	< 2.0 U	< 1.0 U	< 2.0 U	< 2.0 U	< 10 U	< 50 U	< 1.0 U	< 2.0 U	< 2.0 U	< 1.0 U	< 1.0 U	< 2.0 U	< 1.0 U
Benzene	µg/L	5	< 5.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 5.0 U	< 12 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Bromobenzene	µg/L	2,000	< 10 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 10 U	< 25 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Bromochloromethane	µg/L	4,100	< 5.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 5.0 U	< 12 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U
Bromodichloromethane	µg/L	4.6	< 5.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 5.0 U	< 12 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Bromoform	µg/L	36	< 5.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 5.0 U	< 25 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U
Bromomethane	µg/L	140	< 5.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 5.0 U	< 25 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U
Carbon disulfide	µg/L	10,000	< 10 U	< 2.0 U	< 1.0 U	< 2.0 U	< 2.0 U	< 10 U	< 50 U	< 1.0 U	< 2.0 U	< 2.0 U	< 1.0 U	< 1.0 U	< 2.0 U	< 1.0 U
Carbon tetrachloride	µg/L	5	< 5.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 5.0 U	< 25 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U
Chlorobenzene	µg/L	100	< 5.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 5.0 U	< 25 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 0.5 U	< 1.0 U	< 1.0 U
Chloroethane	µg/L	41,000	< 5.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 5.0 U	< 25 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U
Chloroform	µg/L	1,000	< 5.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 5.0 U	< 12 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U
Chloromethane	µg/L	220	< 5.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 5.0 U	< 12 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
cis-1,2-Dichloroethene	µg/L	70	**7.2 J**	**11**	< 0.5 U	< 0.5 U	< 0.5 U	**18**	**30**	**1.1**	**0.88 J**	**0.89 J**	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
cis-1,3-Dichloropropene	µg/L	5.3	< 5.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 5.0 U	< 12 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Dibromochloromethane	µg/L	34	< 5.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 5.0 U	< 25 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U
Dibromomethane	µg/L	380	< 5.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 5.0 U	< 12 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Dichlorodifluoromethane	µg/L	20,000	< 5.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 5.0 U	< 25 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U
Ethylbenzene	µg/L	700	< 10 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 10 U	< 25 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Hexachlorobutadiene	µg/L	20	< 10 U	< 1.0 UJ	< 1.0 U	< 1.0 UJ	< 1.0 UJ	< 10 U	< 25 U	< 1.0 U	< 1.0 UJ	< 1.0 UJ	< 1.0 U	< 1.0 U	< 1.0 UJ	< 1.0 U
Isopropylbenzene	µg/L	10,000	< 10 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 10 U	< 25 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
m,p-Xylene	µg/L	10,000	< 10 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 10 U	< 25 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Methylene chloride	µg/L	5	< 10 U	< 2.0 U	< 1.0 U	< 2.0 U	< 2.0 U	< 10 U	< 50 U	< 1.0 U	< 2.0 U	< 2.0 U	< 1.0 U	< 1.0 U	< 2.0 UJ	< 1.0 U
n-Butylbenzene	µg/L	4,100	< 10 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 10 U	< 25 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
n-Propylbenzene	µg/L	4,100	< 10 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 10 U	< 25 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Naphthalene	µg/L	2,000	< 10 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 10 U	< 25 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U
o-Xylene	µg/L	10,000	< 10 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 10 U	< 25 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
sec-Butylbenzene	µg/L	4,100	< 10 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 10 U	< 25 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U

Table 2. Eastern Plume Semi-Annual Analytical Data, December 2020 and June 2021
LHAAP-58, Longhorn Army Ammunition Plant, Karnack, Texas
Year 7 RA(O) Report

Location ID: / Sample Date:	Units	MCL/MSC	03WW01_120120 12/1/20	03WW01_060221 6/02/21	35AWW01_120720 12/7/20	35AWW01_060121 6/01/21	35AWW01_060121_a 6/01/21	35AWW08_120120 12/1/20	35AWW08_060221 6/02/21	35AWW09_120720 12/7/20	35AWW09_060221 6/02/21	35AWW09_060221_a 6/02/21	35AWW10_120720 12/7/20	35AWW10_120720-a 12/7/20	35AWW10_060121 6/01/21	35AWW12_120720 12/7/20
			Site 58 - E, inside site boundary.	Site 58 - E, inside site boundary.	Site 58 - E, inside site boundary.	Site 58 - E, inside site boundary.	Site 58 - E, inside site boundary. Field Duplicate.	Site 58 - E, inside site boundary.	Site 58 - E, inside site boundary.	Site 58 - E, inside site boundary.	Site 58 - E, inside site boundary.	Site 58 - E, inside site boundary. Field Duplicate	Site 58 - ESE, inside site boundary.	Site 58 - ESE, inside site boundary. Field Duplicate.	Site 58 - ESE, inside site boundary.	Site 58 - E, outside site boundary.
		Location Depth	Shallow	Shallow	Intermediate	Intermediate	Intermediate	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow
		Lab Package	HS20120090	HS21060181	HS20120479	HS21060181	HS21060181	HS20120090	HS21060181	HS20120479	HS21060181	HS21060181	HS20120479	HS20120479	HS21060181	HS20120479
Styrene	µg/L	100	< 10 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 10 U	< 25 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.5 U	< 0.5 U	< 1.0 U	< 1.0 U
tert-Butylbenzene	µg/L	4,100	< 5.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 5.0 U	< 25 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Tetrachloroethene	µg/L	5	< 5.0 U	**11**	< 0.5 U	< 1.0 U	< 1.0 U	< 5.0 U	< 25 U	**370**	**350**	**310**	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U
Toluene	µg/L	1,000	< 5.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 5.0 U	< 12 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
trans-1,2-Dichloroethene	µg/L	100	< 5.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 5.0 U	< 12 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U
trans-1,3-Dichloropropene	µg/L	29	< 5.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 5.0 U	< 12 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Trichloroethene	µg/L	5	**24**	**3.0**	< 0.5 U	< 0.5 U	< 0.5 U	< 5.0 U	**53**	**140**	**130 J**	**130 J**	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Trichlorofluoromethane	µg/L	31,000	< 10 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 10 U	< 25 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U
Vinyl chloride		2	< 5.0 U	**1.6**	< 0.5 U	< 0.5 U	< 0.5 U	**6.1 J**	**24 J**	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Volatile Fatty Acids (HPLC-METACIDS)																
Acetic Acid	mg/L	NV	**1.3 J**	**3.3 J**	NA	NA	NA	**1.1 J**	**1.2 J**	NA	< 2.0 U	**0.63 J**	NA	NA	NA	NA
Butyric Acid	mg/L	NV	**9.6**	< 1.0 U	NA	NA	NA	**17**	< 1.0 U	NA	< 1.0 U	< 1.0 U	NA	NA	NA	NA
Lactic Acid	mg/L	NV	**2.8**	< 1.0 U	NA	NA	NA	**1.9 J**	**2.1**	NA	< 1.0 U	< 1.0 U	NA	NA	NA	NA
Propionic Acid	mg/L	51	< 1.0 U	< 1.5 U	NA	NA	NA	< 1.0 U	< 1.5 U	NA	< 1.5 U	< 1.5 U	NA	NA	NA	NA
Pyruvic Acid	mg/L	NV	**0.068 J**	< 0.10 U	NA	NA	NA	**0.096 J**	< 0.10 U	NA	< 0.10 U	< 0.10 U	NA	NA	NA	NA
ICP-MS Metals (6020A)																
Arsenic	mg/L	0.01	**0.0152**	**0.0169 J**	< 0.0010 U	< 0.00100 U	< 0.00100 U	**0.0244**	**0.00220 J**	NA	**0.000987 J**	**0.000913 J**	NA	NA	NA	NA
Anions (9056A)																
Chloride	mg/L	NV	**870**	**945**	NA	NA	NA	**2,480**	**2,430**	NA	**1,430**	**1,420**	NA	NA	NA	NA
Nitrate	mg/L	10	**0.069 J**	< 0.500 U	NA	NA	NA	**0.188 J**	< 0.500 U	NA	**0.416 J**	< 0.500 U	NA	NA	NA	NA
Sulfate	mg/L	NV	**82.7**	**180**	NA	NA	NA	**63.0**	**148**	NA	**916**	**880**	NA	NA	NA	NA
Dissolved Gases (RSK-175)																
Carbon Dioxide	µg/L	NV	**460,000**	**830,000**	NA	NA	NA	**830,000**	**430,000**	NA	**650,000**	**540,000**	NA	NA	NA	NA
Ethane	µg/L	NV	< 0.47 U	< 0.47 U	NA	NA	NA	< 0.47 U	< 0.47 U	NA	< 0.47 U	< 0.47 U	NA	NA	NA	NA
Ethene	µg/L	NV	**1.1**	< 0.55 U	NA	NA	NA	**5.6**	**33**	NA	< 0.55 U	< 0.55 U	NA	NA	NA	NA
Methane	µg/L	NV	**1,700**	**420**	NA	NA	NA	**320**	**1,600**	NA	**1.6 J**	**2.9 J**	NA	NA	NA	NA
Dechlorinating Bacteria																
BAV1 Vinyl Chloride Reductase	cells/mL	NV	**11.8**	**0.50 J**	NA	NA	NA	**10.2**	**144**	NA	NA	NA	NA	NA	NA	NA
Dehalobacter spp.	cells/mL	NV	**1,610**	**249**	NA	NA	NA	**77,400**	**4,500**	NA	NA	NA	NA	NA	NA	NA
Dehalococoides	cells/mL	NV	**26,600**	**196**	NA	NA	NA	**920,000**	**122,000**	NA	NA	NA	NA	NA	NA	NA
tceA Reductase	cells/mL	NV	**4,060**	**54.2**	NA	NA	NA	**117,000**	**16,400**	NA	NA	NA	NA	NA	NA	NA
Vinyl Chloride Reductase	cells/mL	NV	**2,330**	**102**	NA	NA	NA	**80,900**	**18,700**	NA	NA	NA	NA	NA	NA	NA
Field Parameters																
Temperature	^{0}C	NV	12.88	20.98	16.33	22.03		15.03	21.38	16.20	21.08		18.30		23.63	18.90
pH	s.u.	5-9	6.17	6.25	6.53	5.68		6.05	6.64	5.94	5.57		5.09		5.80	5.21
DO	mg/L	< 0.5	0.10	0.27	0.20	0.17		0.08	0.04	0.79	0.47		2.15		1.97	0.12
ORP	mV	< 0.0	-50	-99	62	78		-25	-144	112	256		239		177	202

Blue Highlighting Indicates concentrations above the MCL/MSC

MCL/MSC - Maximum Contaminant Limit/Medium-Specific Concentrations

NA - Not Analyzed

µg/L - micrograms per liter

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LHAAP-58, Longhorn Army Ammunition Plant, Karnack, Texas
Year 7 RA(O) Report

Location ID: / Sample Date:	Units	MCL/MSC	35AWW12_060221 6/02/21	35AWW13_120720 12/7/20	35AWW13_060121 6/01/21	35AWW14_120720 12/7/20	35AWW14_060121 6/01/21	35AWW16_120120 12/1/20	35AWW16_060121 6/01/21	35AWW17_120120 12/1/20	35AWW17_060321 6/03/21	35AWW18_120120 12/1/20	35AWW18_120120_a 12/1/20	35AWW18_060121 6/01/21	34AWW21_120720 12/7/20
			Site 58 - E, outside site boundary.	Site 58 - SE, outside site boundary.	Site 58 - SE, outside site boundary.	Site 58 - SE, outside site boundary.	Site 58 - SE, outside site boundary.	Site 58 - SW, outside site boundary, near Building 744-A.	Site 58 - SW, outside site boundary, near Building 744-A.	Site 58 - SW, outside site boundary.	Site 58 - SW, outside site boundary.	Site 58 - SSW, outside site boundary.	Site 58 - SSW, outside site boundary. Field Duplicate	Site 58 - SSW, outside site boundary.	Site 58 - ESE, outside site boundary, beside Building 725.
		Location Depth	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow
		Lab Package	HS21060181	HS20120479	HS21060181	HS20120479	HS21060181	HS20120090	HS21060181	HS20120090	HS21060226	HS20120090	HS20120090	HS21060181	HS20120479
Total Organic Carbon (415.1/SM5310C)															
Total Organic Carbon	mg/L	NV	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds (8260C)															
1,1,1,2-Tetrachloroethane	µg/L	110	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U
1,1,1-Trichloroethane	µg/L	200	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,1,2,2-Tetrachloroethane	µg/L	14	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U
1,1,2-Trichloroethane	µg/L	5	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U
1,1-Dichloroethane	µg/L	10,000	< 0.5 U	< 0.5 U	< 0.5 U	**13**	**11**	< 0.5 U	**0.46 J**	< 0.5 U	< 0.5 U	**3.6**	**3.5**	**3.1**	< 0.5 U
1,1-Dichloroethene	µg/L	7	< 0.5 U	< 0.5 U	< 0.5 U	**9.4**	**10.0**	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	**22**	**22**	**20**	< 0.5 U
1,1-Dichloropropene	µg/L	2.9	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U
1,2,3-Trichlorobenzene	µg/L	310	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,2,3-Trichloropropane	µg/L	0.041	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,2,4-Trichlorobenzene	µg/L	70	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,2,4-Trimethylbenzene	µg/L	5,100	< 1.0 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 1.0 U
1,2-Dibromo-3-chloropropane	µg/L	0.2	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,2-Dibromoethane	µg/L	0.05	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,2-Dichlorobenzene	µg/L	600	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,2-Dichloroethane	µg/L	5	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,2-Dichloropropane	µg/L	5	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U
1,3,5-Trimethylbenzene	µg/L	5,100	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U
1,3-Dichlorobenzene	µg/L	3,100	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,3-Dichloropropane	µg/L	29	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 1.0 U
1,4-Dichlorobenzene	µg/L	75	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
2,2-Dichloropropane	µg/L	42	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
2-Butanone	µg/L	61,000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
2-Chlorotoluene	µg/L	2,000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 1.0 U
2-Hexanone	µg/L	6,100	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U
4-Chlorotoluene	µg/L	2,000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
4-Isopropyltoluene	µg/L	10,000	< 1.0 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 1.0 U
4-Methyl-2-pentanone	µg/L	8,200	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U
Acetone	µg/L	92,000	< 2.0 U	< 1.0 U	< 2.0 U	**12**	< 2.0 U	< 1.0 U	< 2.0 U	< 1.0 U	< 2.0 U	< 1.0 U	< 1.0 U	< 2.0 U	< 1.0 U
Benzene	µg/L	5	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Bromobenzene	µg/L	2,000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Bromochloromethane	µg/L	4,100	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Bromodichloromethane	µg/L	4.6	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Bromoform	µg/L	36	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U
Bromomethane	µg/L	140	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U
Carbon disulfide	µg/L	10,000	< 2.0 U	< 1.0 U	< 2.0 U	< 1.0 U	< 2.0 U	< 1.0 U	< 2.0 U	< 1.0 U	< 2.0 U	< 1.0 U	< 1.0 U	< 2.0 U	< 1.0 U
Carbon tetrachloride	µg/L	5	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U
Chlorobenzene	µg/L	100	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U
Chloroethane	µg/L	41,000	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U
Chloroform	µg/L	1,000	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Chloromethane	µg/L	220	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
cis-1,2-Dichloroethene	µg/L	70	< 0.5 U	< 0.5 U	< 0.5 U	**4.5**	**5.0**	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
cis-1,3-Dichloropropene	µg/L	5.3	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Dibromochloromethane	µg/L	34	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U
Dibromomethane	µg/L	380	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Dichlorodifluoromethane	µg/L	20,000	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Ethylbenzene	µg/L	700	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U
Hexachlorobutadiene	µg/L	20	< 1.0 UJ	< 1.0 U	< 1.0 UJ	< 1.0 U	< 1.0 UJ	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 UJ	< 1.0 U
Isopropylbenzene	µg/L	10,000	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U
m,p-Xylene	µg/L	10,000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Methylene chloride	µg/L	5	< 2.0 U	< 1.0 U	< 2.0 U	< 1.0 U	< 2.0 U	< 1.0 U	< 2.0 U	< 1.0 U	< 2.0 U	< 1.0 U	< 1.0 U	< 2.0 U	< 1.0 U
n-Butylbenzene	µg/L	4,100	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
n-Propylbenzene	µg/L	4,100	< 1.0 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.5 U	< 0.5 U	< 1.0 U	< 1.0 U
Naphthalene	µg/L	2,000	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U
o-Xylene	µg/L	10,000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.5 U	< 0.5 U	< 1.0 U	< 1.0 U
sec-Butylbenzene	µg/L	4,100	< 1.0 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U

Table 2. Eastern Plume Semi-Annual Analytical Data, December 2020 and June 2021
LHAAP-58, Longhorn Army Ammunition Plant, Karnack, Texas
Year 7 RA(O) Report

Location ID: / Sample Date:	Units	MCL/MSC	35AWW12_060221 6/02/21	35AWW13_120720 12/7/20	35AWW13_060121 6/01/21	35AWW14_120720 12/7/20	35AWW14_060121 6/01/21	35AWW16_120120 12/1/20	35AWW16_060121 6/01/21	35AWW17_120120 12/1/20	35AWW17_060321 6/03/21	35AWW18_120120 12/1/20	35AWW18_120120_a 12/1/20	35AWW18_060121 6/01/21	34AWW21_120720 12/7/20
			Site 58 - E, outside site boundary.	Site 58 - SE, outside site boundary.	Site 58 - SE, outside site boundary.	Site 58 - SE, outside site boundary.	Site 58 - SE, outside site boundary.	Site 58 - SW, outside site boundary, near Building 744-A.	Site 58 - SW, outside site boundary, near Building 744-A.	Site 58 - SW, outside site boundary.	Site 58 - SW, outside site boundary.	Site 58 - SSW, outside site boundary.	Site 58 - SSW, outside site boundary. Field Duplicate	Site 58 - SSW, outside site boundary.	Site 58 - ESE, outside site boundary, beside Building 725.
		Location Depth	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow
		Lab Package	HS21060181	HS20120479	HS21060181	HS20120479	HS21060181	HS20120090	HS21060181	HS20120090	HS21060226	HS20120090	HS20120090	HS21060181	HS20120479
Styrene	µg/L	100	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.5 U	< 0.5 U	< 1.0 U	< 1.0 U
tert-Butylbenzene	µg/L	4,100	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.5 U	< 0.5 U	< 1.0 U	< 1.0 U
Tetrachloroethene	µg/L	5	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U
Toluene	µg/L	1,000	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
trans-1,2-Dichloroethene	µg/L	100	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
trans-1,3-Dichloropropene	µg/L	29	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Trichloroethene	µg/L	5	< 0.5 U	< 0.5 U	< 0.5 U	**11**	**14**	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Trichlorofluoromethane	µg/L	31,000	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.5 U
Vinyl chloride		2	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Volatile Fatty Acids (HPLC-METACIDS)															
Acetic Acid	mg/L	NV	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butyric Acid	mg/L	NV	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lactic Acid	mg/L	NV	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propionic Acid	mg/L	51	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyruvic Acid	mg/L	NV	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ICP-MS Metals (6020A)															
Arsenic	mg/L	0.01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anions (9056A)															
Chloride	mg/L	NV	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate	mg/L	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	mg/L	NV	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dissolved Gases (RSK-175)															
Carbon Dioxide	µg/L	NV	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethane	µg/L	NV	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethene	µg/L	NV	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methane	µg/L	NV	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dechlorinating Bacteria															
BAV1 Vinyl Chloride Reductase	cells/mL	NV	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dehalobacter spp.	cells/mL	NV	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dehalococoides	cells/mL	NV	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tceA Reductase	cells/mL	NV	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl Chloride Reductase	cells/mL	NV	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Field Parameters															
Temperature	^{0}C	NV	23.32	16.63	23.72	17.50	22.50	19.18	22.72	15.89	21.65	16.95		22.46	17.89
pH	s.u.	5-9	5.43	5.99	5.93	5.75	5.81	6.54	6.10	6.37	5.75	6.63		6.32	5.06
DO	mg/L	< 0.5	0.68	0.20	0.11	8.74	8.39	0.04	0.31	0.87	0.07	0.97		0.97	0.31
ORP	mV	< 0.0	156	216	154	163	88	70	85	46	127	64		6	193

Blue Highlighting Indicates concentrations above the MCL/MSC

MCL/MSC - Maximum Contaminant Limit/Medium-Specific Concentrations

NA - Not Analyzed

µg/L - micrograms per liter

Table 2. Eastern Plume Semi-Annual Analytical Data, December 2020 and June 2021
LHAAP-58, Longhorn Army Ammunition Plant, Karnack, Texas
Year 7 RA(O) Report

Location ID: / Sample Date:	Units	MCL/MSC	34AWW21_060121 6/01/21	35AWW22_120720 12/7/20	35AWW22_060221 6/02/21	35ASW03 December 2020	35ASW03_060321 6/03/21
			Site 58 - ESE, outside site boundary, beside Building 725.	Site 58 - ENE, outside site boundary.	Site 58 - ENE, outside site boundary.	Site 58 - E, inside site boundary.	Site 58 - E, inside site boundary.
Location Depth			Shallow	Shallow	Shallow	Surface Water	Surface Water
Lab Package			HS21060181	HS20120479	HS21060181	NA	HS21060226
Total Organic Carbon (415.1/SM5310C)							
Total Organic Carbon	mg/L	NV	NA	NA	NA	**Dry**	NA
Volatile Organic Compounds (8260C)							
1,1,1,2-Tetrachloroethane	µg/L	110	< 1.0 U	< 0.5 U	< 1.0 U		< 1.0 U
1,1,1-Trichloroethane	µg/L	200	< 0.5 U	< 0.5 U	< 0.5 U		< 0.5 U
1,1,2,2-Tetrachloroethane	µg/L	14	< 1.0 U	< 0.5 U	< 1.0 U		< 1.0 U
1,1,2-Trichloroethane	µg/L	5	< 1.0 U	< 0.5 U	< 1.0 U		< 1.0 U
1,1-Dichloroethane	µg/L	10,000	< 0.5 U	< 0.5 U	< 0.5 U		< 0.5 U
1,1-Dichloroethene	µg/L	7	< 0.5 U	< 0.5 U	< 0.5 U		< 0.5 U
1,1-Dichloropropene	µg/L	2.9	< 1.0 U	< 0.5 U	< 1.0 U		< 1.0 U
1,2,3-Trichlorobenzene	µg/L	310	< 1.0 U	< 1.0 U	< 1.0 U		< 1.0 U
1,2,3-Trichloropropane	µg/L	0.041	< 1.0 U	< 1.0 U	< 1.0 U		< 1.0 U
1,2,4-Trichlorobenzene	µg/L	70	< 1.0 U	< 1.0 U	< 1.0 U		< 1.0 U
1,2,4-Trimethylbenzene	µg/L	5,100	< 1.0 U	< 1.0 U	< 1.0 U		< 1.0 U
1,2-Dibromo-3-chloropropane	µg/L	0.2	< 0.5 U	< 0.5 U	< 0.5 U		< 0.5 U
1,2-Dibromoethane	µg/L	0.05	< 0.5 U	< 0.5 U	< 0.5 U		< 0.5 U
1,2-Dichlorobenzene	µg/L	600	< 1.0 U	< 1.0 U	< 1.0 U		< 1.0 U
1,2-Dichloroethane	µg/L	5	< 0.5 U	< 0.5 U	< 0.5 U		< 0.5 U
1,2-Dichloropropane	µg/L	5	< 1.0 U	< 0.5 U	< 1.0 U		< 1.0 U
1,3,5-Trimethylbenzene	µg/L	5,100	< 1.0 U	< 0.5 U	< 1.0 U		< 1.0 U
1,3-Dichlorobenzene	µg/L	3,100	< 1.0 U	< 1.0 U	< 1.0 U		< 1.0 U
1,3-Dichloropropane	µg/L	29	< 1.0 U	< 1.0 U	< 1.0 U		< 1.0 U
1,4-Dichlorobenzene	µg/L	75	< 1.0 U	< 1.0 U	< 1.0 U		< 1.0 U
2,2-Dichloropropane	µg/L	42	< 0.5 U	< 0.5 U	< 0.5 U		< 0.5 U
2-Butanone	µg/L	61,000	< 1.0 U	< 1.0 U	< 1.0 U		< 1.0 U
2-Chlorotoluene	µg/L	2,000	< 1.0 U	< 1.0 U	< 1.0 U		< 1.0 U
2-Hexanone	µg/L	6,100	< 2.0 U	< 2.0 U	< 2.0 U		< 2.0 U
4-Chlorotoluene	µg/L	2,000	< 1.0 U	< 1.0 U	< 1.0 U		< 1.0 U
4-Isopropyltoluene	µg/L	10,000	< 1.0 U	< 1.0 U	< 1.0 U		< 1.0 U
4-Methyl-2-pentanone	µg/L	8,200	< 2.0 U	< 2.0 U	< 2.0 U		< 2.0 U
Acetone	µg/L	92,000	< 2.0 U	< 1.0 U	< 2.0 U	**Dry**	< 2.0 U
Benzene	µg/L	5	< 0.5 U	< 0.5 U	< 0.5 U		< 0.5 U
Bromobenzene	µg/L	2,000	< 1.0 U	< 1.0 U	< 1.0 U		< 1.0 U
Bromochloromethane	µg/L	4,100	< 0.5 U	< 0.5 U	< 0.5 U		< 0.5 U
Bromodichloromethane	µg/L	4.6	< 0.5 U	< 0.5 U	< 0.5 U		< 0.5 U
Bromoform	µg/L	36	< 1.0 U	< 0.5 U	< 1.0 U		< 1.0 U
Bromomethane	µg/L	140	< 1.0 U	< 0.5 U	< 1.0 U		< 1.0 U
Carbon disulfide	µg/L	10,000	< 2.0 U	< 1.0 U	< 2.0 U		< 2.0 U
Carbon tetrachloride	µg/L	5	< 1.0 U	< 0.5 U	< 1.0 U		< 1.0 U
Chlorobenzene	µg/L	100	< 1.0 U	< 0.5 U	< 1.0 U		< 1.0 U
Chloroethane	µg/L	41,000	< 1.0 U	< 0.5 U	< 1.0 U		< 1.0 U
Chloroform	µg/L	1,000	< 0.5 U	< 0.5 U	< 0.5 U		< 0.5 U
Chloromethane	µg/L	220	< 0.5 U	< 0.5 U	< 0.5 U		< 0.5 U
cis-1,2-Dichloroethene	µg/L	70	< 0.5 U	< 0.5 U	< 0.5 U		< 0.5 U
cis-1,3-Dichloropropene	µg/L	5.3	< 0.5 U	< 0.5 U	< 0.5 U		< 0.5 U
Dibromochloromethane	µg/L	34	< 1.0 U	< 0.5 U	< 1.0 U		< 1.0 U
Dibromomethane	µg/L	380	< 0.5 U	< 0.5 U	< 0.5 U		< 0.5 U
Dichlorodifluoromethane	µg/L	20,000	< 1.0 U	< 1.0 U	< 1.0 U		< 1.0 U
Ethylbenzene	µg/L	700	< 1.0 U	< 0.5 U	< 1.0 U		< 1.0 U
Hexachlorobutadiene	µg/L	20	< 1.0 UJ	< 1.0 U	< 1.0 UJ		< 1.0 U
Isopropylbenzene	µg/L	10,000	< 1.0 U	< 0.5 U	< 1.0 U		< 1.0 U
m,p-Xylene	µg/L	10,000	< 1.0 U	< 1.0 U	< 1.0 U		< 1.0 U
Methylene chloride	µg/L	5	< 2.0 U	< 1.0 U	< 2.0 U		< 2.0 U
n-Butylbenzene	µg/L	4,100	< 1.0 U	< 1.0 U	< 1.0 U		< 1.0 U
n-Propylbenzene	µg/L	4,100	< 1.0 U	< 0.5 U	< 1.0 U		< 1.0 U
Naphthalene	µg/L	2,000	< 1.0 U	< 1.0 U	< 1.0 U		< 1.0 U
o-Xylene	µg/L	10,000	< 1.0 U	< 0.5 U	< 1.0 U		< 1.0 U
sec-Butylbenzene	µg/L	4,100	< 1.0 U	< 1.0 U	< 1.0 U		< 1.0 U

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Location ID: / Sample Date:	Units	MCL/MSC	34AWW21_060121 6/01/21	35AWW22_120720 12/7/20	35AWW22_060221 6/02/21	35ASW03 December 2020	35ASW03_060321 6/03/21
			Site 58 - ESE, outside site boundary, beside Building 725.	Site 58 - ENE, outside site boundary.	Site 58 - ENE, outside site boundary.	Site 58 - E, inside site boundary.	Site 58 - E, inside site boundary.
Location Depth			Shallow	Shallow	Shallow	Surface Water	Surface Water
Lab Package			HS21060181	HS20120479	HS21060181	NA	HS21060226
Styrene	µg/L	100	< 1.0 U	< 0.5 U	< 1.0 U	**Dry**	< 1.0 U
tert-Butylbenzene	µg/L	4,100	< 1.0 U	< 0.5 U	< 1.0 U		< 1.0 U
Tetrachloroethene	µg/L	5	< 1.0 U	< 0.5 U	< 1.0 U		< 1.0 U
Toluene	µg/L	1,000	< 0.5 U	< 0.5 U	< 0.5 U		< 0.5 U
trans-1,2-Dichloroethene	µg/L	100	< 0.5 U	< 0.5 U	< 0.5 U		< 0.5 U
trans-1,3-Dichloropropene	µg/L	29	< 0.5 U	< 0.5 U	< 0.5 U		< 0.5 U
Trichloroethene	µg/L	5	< 0.5 U	< 0.5 U	< 0.5 U		< 0.5 U
Trichlorofluoromethane	µg/L	31,000	< 1.0 U	< 1.0 U	< 1.0 U		< 1.0 U
Vinyl chloride		2	< 0.5 U	< 0.5 U	< 0.5 U		< 0.5 U
Volatile Fatty Acids (HPLC-METACIDS)							
Acetic Acid	mg/L	NV	NA	NA	NA	**Dry**	NA
Butyric Acid	mg/L	NV	NA	NA	NA		NA
Lactic Acid	mg/L	NV	NA	NA	NA		NA
Propionic Acid	mg/L	51	NA	NA	NA		NA
Pyruvic Acid	mg/L	NV	NA	NA	NA		NA
ICP-MS Metals (6020A)							
Arsenic	mg/L	0.01	NA	NA	NA	**Dry**	NA
Anions (9056A)							
Chloride	mg/L	NV	NA	NA	NA	**Dry**	NA
Nitrate	mg/L	10	NA	NA	NA		NA
Sulfate	mg/L	NV	NA	NA	NA		NA
Dissolved Gases (RSK-175)							
Carbon Dioxide	µg/L	NV	NA	NA	NA	**Dry**	NA
Ethane	µg/L	NV	NA	NA	NA		NA
Ethene	µg/L	NV	NA	NA	NA		NA
Methane	µg/L	NV	NA	NA	NA		NA
Dechlorinating Bacteria							
BAV1 Vinyl Chloride Reductase	cells/mL	NV	NA	NA	NA	**Dry**	NA
Dehalobacter spp.	cells/mL	NV	NA	NA	NA		NA
Dehalococoides	cells/mL	NV	NA	NA	NA		NA
tceA Reductase	cells/mL	NV	NA	NA	NA		NA
Vinyl Chloride Reductase	cells/mL	NV	NA	NA	NA		NA
Field Parameters							
Temperature	^{0}C	NV	21.84	17.16	23.19	**Dry**	NA
pH	s.u.	5-9	5.24	5.55	5.51		NA
DO	mg/L	< 0.5	0.84	0.34	0.75		NA
ORP	mV	< 0.0	259	185	138		NA

Blue Highlighting Indicates concentrations above the MCL/MSC

MCL/MSC - Maximum Contaminant Limit/Medium-Specific Concentrations

NA - Not Analyzed

µg/L - micrograms per liter

Table 3. Western Plume Analytical Data, December 2020 and June 2021
LHAAP-58, Longhorn Army Ammunition Plant, Karnack, Texas
Year 7 RA(O) Report

Location ID: / Sample Date:	Units	MCL/MSC	35AWW05_120320 12/3/20	35AWW05_060221 6/02/21	35AWW06_120120 12/1/20	35AWW06_060321 6/03/21	35AWW11_120120 12/1/20	35AWW11_120120_a 12/1/20	35AWW11_060221 6/02/21	35AWW15_120120 12/1/20	35AWW15_060121 6/01/21	35AWW18_120120 12/1/20	35AWW18_120120_a 12/1/20	35AWW18_060121 6/01/21	35AWW19_120320 12/3/20
Location Description			Site 58 - E, inside site boundary.	Site 58 - SW, outside site boundary.	Site 58 - SW, outside site boundary.	Site 58 - SW, outside site boundary.	Site 58 - SE, inside site boundary.	Site 58 - SE, inside site boundary.	Site 58 - SE, inside site boundary.	Site 58 - W, inside site boundary.	Site 58 - W, inside site boundary.	Site 58 - SSW, outside site boundary.	Site 58 - SSW, outside site boundary. Field Duplicate	Site 58 - SSW, outside site boundary.	Site 58 - S, outside site boundary.
Location Depth			Intermediate	Intermediate	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow
Lab Package			HS20120247	HS21060181	HS20120090	HS21060226	HS20120090	HS20120090	HS21060181	HS20120090	HS21060181	HS20120090	HS20120090	HS21060181	HS20120247
Volatile Organic Compounds (8260C)															
1,1,1,2-Tetrachloroethane	µg/L	110	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U
1,1,1-Trichloroethane	µg/L	200	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,1,2,2-Tetrachloroethane	µg/L	14	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U
1,1,2-Trichloroethane	µg/L	5	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U
1,1-Dichloroethane	µg/L	10,000	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	**3.6**	**3.5**	**3.1**	**0.89 J**
1,1-Dichloroethene	µg/L	7	< 0.5 U	< 0.5 U	**0.78 J**	**0.90 J**	**0.53 J**	< 0.5 U	**0.62 J**	< 0.5 U	< 0.5 U	**22**	**22**	**20**	**3.2**
1,1-Dichloropropene	µg/L	2.9	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U
1,2,3-Trichlorobenzene	µg/L	310	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,2,3-Trichloropropane	µg/L	0.041	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**26**	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,2,4-Trichlorobenzene	µg/L	70	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,2,4-Trimethylbenzene	µg/L	5,100	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U
1,2-Dibromo-3-chloropropane	µg/L	0.2	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,2-Dibromoethane	µg/L	0.05	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,2-Dichlorobenzene	µg/L	600	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,2-Dichloroethane	µg/L	5	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	**1.3**
1,2-Dichloropropane	µg/L	5	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U
1,3,5-Trimethylbenzene	µg/L	5,100	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U
1,3-Dichlorobenzene	µg/L	3,100	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,3-Dichloropropane	µg/L	29	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U
1,4-Dichlorobenzene	µg/L	75	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
2,2-Dichloropropane	µg/L	42	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
2-Butanone	µg/L	61,000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
2-Chlorotoluene	µg/L	2,000	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U
2-Hexanone	µg/L	6,100	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U
4-Chlorotoluene	µg/L	2,000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
4-Isopropyltoluene	µg/L	10,000	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 1.0 U
4-Methyl-2-pentanone	µg/L	8,200	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U
Acetone	µg/L	92,000	< 1.0 U	< 2.0 U	< 1.0 U	**6.9**	< 1.0 U	< 1.0 U	< 2.0 U	< 1.0 U	< 2.0 U	< 1.0 U	< 1.0 U	< 2.0 U	< 1.0 U
Benzene	µg/L	5	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Bromobenzene	µg/L	2,000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Bromochloromethane	µg/L	4,100	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Bromodichloromethane	µg/L	4.6	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Bromoform	µg/L	36	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U
Bromomethane	µg/L	140	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U
Carbon disulfide	µg/L	10,000	< 1.0 U	< 2.0 U	< 1.0 U	< 2.0 U	< 1.0 U	< 1.0 U	< 2.0 U	< 1.0 U	< 2.0 U	< 1.0 U	< 1.0 U	< 2.0 U	< 1.0 U
Carbon tetrachloride	µg/L	5	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U
Chlorobenzene	µg/L	100	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U
Chloroethane	µg/L	41,000	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U
Chloroform	µg/L	1,000	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Chloromethane	µg/L	220	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
cis-1,2-Dichloroethene	µg/L	70	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
cis-1,3-Dichloropropene	µg/L	5.3	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Dibromochloromethane	µg/L	34	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U
Dibromomethane	µg/L	380	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Dichlorodifluoromethane	µg/L	20,000	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Ethylbenzene	µg/L	700	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 1.0 U
Hexachlorobutadiene	µg/L	20	< 1.0 U	< 1.0 UJ	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 UJ	< 1.0 U	< 1.0 UJ	< 1.0 U	< 1.0 U	< 1.0 UJ	< 1.0 U
Isopropylbenzene	µg/L	10,000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U
m,p-Xylene	µg/L	10,000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Methylene chloride	µg/L	5	< 1.0 U	< 2.0 U	< 1.0 U	< 2.0 U	< 1.0 U	< 1.0 U	< 2.0 U	< 1.0 U	< 2.0 U	< 1.0 U	< 1.0 U	< 2.0 U	< 1.0 U
n-Butylbenzene	µg/L	4,100	< 1.0 U	< 1.0 U	**1.7**	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
n-Propylbenzene	µg/L	4,100	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 1.0 U	< 1.0 U
Naphthalene	µg/L	2,000	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U
o-Xylene	µg/L	10,000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 1.0 U	< 1.0 U
sec-Butylbenzene	µg/L	4,100	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 1.0 U	< 1.0 U
Styrene	µg/L	100	< 0.5 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U
tert-Butylbenzene	µg/L	4,100	< 0.5 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U
Tetrachloroethene	µg/L	5	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U

Table 3. Western Plume Analytical Data, December 2020 and June 2021
LHAAP-58, Longhorn Army Ammunition Plant, Karnack, Texas
Year 7 RA(O) Report

Location ID: / Sample Date:	Units	MCL/MSC	35AWW05_120320 12/3/20	35AWW05_060221 6/02/21	35AWW06_120120 12/1/20	35AWW06_060321 6/03/21	35AWW11_120120 12/1/20	35AWW11_120120_a 12/1/20	35AWW11_060221 6/02/21	35AWW15_120120 12/1/20	35AWW15_060121 6/01/21	35AWW18_120120 12/1/20	35AWW18_120120_a 12/1/20	35AWW18_060121 6/01/21	35AWW19_120320 12/3/20
Location Description			Site 58 - E, inside site boundary.	Site 58 - SW, outside site boundary.	Site 58 - SW, outside site boundary.	Site 58 - SW, outside site boundary.	Site 58 - SE, inside site boundary.	Site 58 - SE, inside site boundary.	Site 58 - SE, inside site boundary.	Site 58 - W, inside site boundary.	Site 58 - W, inside site boundary.	Site 58 - SSW, outside site boundary.	Site 58 - SSW, outside site boundary. Field Duplicate	Site 58 - SSW, outside site boundary.	Site 58 - S, outside site boundary.
Location Depth			Intermediate	Intermediate	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow
Lab Package			HS20120247	HS21060181	HS20120090	HS21060226	HS20120090	HS20120090	HS21060181	HS20120090	HS21060181	HS20120090	HS20120090	HS21060181	HS20120247
Volatile Organic Compounds (8260C)															
Toluene	µg/L	1,000	< 0.5 U	< 0.5 U	**0.55 J**	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
trans-1,2-Dichloroethene	µg/L	100	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
trans-1,3-Dichloropropene	µg/L	29	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Trichloroethene	µg/L	5	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Trichlorofluoromethane	µg/L	31,000	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.5 U
Vinyl chloride		2	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Total Organic Carbon (415.1/SM5310C)															
Total Organic Carbon	mg/L	NV	NA	NA	**8.67 J**	**14.4**	**3.63**	**3.81**	**11.0**	NA	NA	NA	NA	NA	**1.63**
Volatile Fatty Acids (HPLC-METACIDS)															
Acetic Acid	mg/L	NV	NA	NA	< 2.0 U	**1.3 J**	< 2.0 U	< 2.0 U	**0.87 J**	NA	NA	NA	NA	NA	< 2.0 U
Butyric Acid	mg/L	NV	NA	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	NA	NA	NA	NA	< 1.0 U
Lactic Acid	mg/L	NV	NA	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	NA	NA	NA	NA	< 1.0 U
Propionic Acid	mg/L	51	NA	NA	< 1.0 U	< 1.5 U	< 1.0 U	< 1.0 U	< 1.5 U	NA	NA	NA	NA	NA	< 1.0 U
Pyruvic Acid	mg/L	NV	NA	NA	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	NA	NA	NA	NA	NA	< 0.10 U
ICP-MS Metals (6020A)															
Arsenic	mg/L	0.01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anions (9056A)															
Chloride	mg/L	NV	NA	NA	**937**	**940**	**1,990**	**2,030**	**1,790**	NA	NA	NA	NA	NA	**786**
Nitrate	mg/L	10	NA	NA	< 0.200 U	< 0.200 U	**0.248 J**	**0.284 J**	< 0.500 U	NA	NA	NA	NA	NA	< 0.100 U
Sulfate	mg/L	NV	NA	NA	**45.6**	**197**	**415 J**	**295 J**	**460**	NA	NA	NA	NA	NA	**860**
Dissolved Gases (RSK-175)															
Carbon Dioxide	µg/L	NV	NA	NA	**270,000**	**490,000**	**610,000**	**530,000**	**890,000**	NA	NA	NA	NA	NA	**440,000 J**
Ethane	µg/L	NV	NA	NA	< 0.47 U	< 0.47 U	< 0.47 U	< 0.47 U	< 0.47 U	NA	NA	NA	NA	NA	< 0.47 U
Ethene	µg/L	NV	NA	NA	< 0.55 U	< 0.55 U	< 0.55 U	< 0.55 U	< 0.55 U	NA	NA	NA	NA	NA	< 0.55 U
Methane	µg/L	NV	NA	NA	**3,300**	**2,200**	**1,800 J**	**4,400 J**	**1,000**	NA	NA	NA	NA	NA	**4.2**
Dechlorinating Bacteria															
BAV1 Vinyl Chloride Reductase	cells/mL	NV	NA	NA	< 1.4 U	**1.50 J**	< 1.1 U	NA	< 1.0 U	NA	NA	NA	NA	NA	**5.5**
Dehalobacter spp.	cells/mL	NV	NA	NA	**3,700**	**4,170**	**52,700**	NA	**5830**	NA	NA	NA	NA	NA	**30,100**
Dehalococoides	cells/mL	NV	NA	NA	**1,060**	**15**	**368**	NA	**170**	NA	NA	NA	NA	NA	**40.2**
tceA Reductase	cells/mL	NV	NA	NA	**114**	< 2.80 U	**4.5**	NA	**0.30 J**	NA	NA	NA	NA	NA	< 0.60 U
Vinyl Chloride Reductase	cells/mL	NV	NA	NA	**123**	< 2.80 U	**118**	NA	**33.5**	NA	NA	NA	NA	NA	**0.20 J**
Field Parameters															
Temperature	°C	NV	17.21	22.75	16.30	21.72	13.32		21.48	21.98	22.27	16.95		22.46	17.26
pH	s.u.	5-9	5.77	5.48	7.03	6.50	5.99		5.96	6.52	6.05	6.63		6.32	5.64
DO	mg/L	< 0.5	0.25	0.05	0.03	0.03	0.05		0.06	0.54	0.20	0.97		0.97	0.11
ORP	mV	< 0.0	80	52	-55	29	4		-28	78	159	64		6	65

Notes:

Blue Highlighting Indicates concentrations above the MCL/MSC

MCL/MSC - Maximum Contaminant Limit/Medium-Specific Concentrations

NA - Not Analyzed

µg/L - micrograms per liter

mg/L - milligrams per liter

J - Estimated: Between the method detection limit and reporting limit and/or due to discrepancies in meeting certain analyte-specific quality control criteria.

UJ - The analyte was not detected; however, the result is estimated due to discrepancies in meeting certain analyte-specific quality control criteria.

U - Undetected: The analyte was analyzed for, but not detected.

NV - No Value

Table 3. Western Plume Analytical Data, December 2020 and June 2021
LHAAP-58, Longhorn Army Ammunition Plant, Karnack, Texas
Year 7 RA(O) Report

Location ID: / Sample Date:	Units	MCL/MSC	35AWW19_060321 6/03/21	35AWW20_120320 12/3/20	35AWW20_060321 6/03/21	35AWW23_120320 12/3/20	35AWW23_060321 6/03/21	35AWW24_120320 12/3/20	35AWW24_060121 6/01/21	35AWW24_060121_a 6/01/21	LHSMW06_120320 12/3/20	LHSMW06_060321 6/03/21	LHSMW07_120320 12/3/20	LHSMW07_060221 6/02/21
Location Description			Site 58 - S, outside site boundary.	Site 58 - SW, inside site boundary.	Site 58 - SW, inside site boundary.	Site 58 - SW, outside site boundary.	Site 58 - SW, outside site boundary.	Downgradient Western Plume well	Downgradient Western Plume well	Downgradient Western Plume well Field Duplicate.	Site 58 - SW, inside site boundary, beside Building 715.	Site 58 - SW, inside site boundary, beside Building 715.	Site 58 - SW, outside site boundary.	Site 58 - SW, outside site boundary.
Location Depth			Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow
Lab Package			HS21060226	HS20120247	HS21060226	HS20120247	HS21060226	HS20120247	HS21060181	HS21060181	HS20120247	HS21060226	HS20120247	HS21060181
Volatile Organic Compounds (8260C)														
1,1,1,2-Tetrachloroethane	µg/L	110	< 1.0 U	< 1.0 U	< 10 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U
1,1,1-Trichloroethane	µg/L	200	< 0.5 U	< 0.5 U	< 5.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,1,2,2-Tetrachloroethane	µg/L	14	< 1.0 U	< 0.5 U	< 10 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U
1,1,2-Trichloroethane	µg/L	5	< 1.0 U	**73**	**73**	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U
1,1-Dichloroethane	µg/L	10,000	**0.64 J**	**550**	**480**	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	**6.1**	**5.3**	**7.8**	**5.7**
1,1-Dichloroethene	µg/L	7	**2.9**	**950**	**1,600**	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	**14**	**11**	**64**	**12**
1,1-Dichloropropene	µg/L	2.9	< 1.0 U	< 0.5 U	< 10 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U
1,2,3-Trichlorobenzene	µg/L	310	< 1.0 U	< 1.0 U	< 10 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,2,3-Trichloropropane	µg/L	0.041	< 1.0 U	< 1.0 U	< 10 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,2,4-Trichlorobenzene	µg/L	70	< 1.0 U	< 1.0 U	< 10 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,2,4-Trimethylbenzene	µg/L	5,100	< 1.0 U	< 1.0 U	< 10 U	< 1.0 U	**0.51 J**	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,2-Dibromo-3-chloropropane	µg/L	0.2	< 0.5 U	< 0.5 U	< 5.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,2-Dibromoethane	µg/L	0.05	< 0.5 U	< 0.5 U	< 5.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,2-Dichlorobenzene	µg/L	600	< 1.0 U	**22**	**27**	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,2-Dichloroethane	µg/L	5	< 0.5 U	**16**	**17**	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,2-Dichloropropane	µg/L	5	< 1.0 U	< 0.5 U	< 10 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U
1,3,5-Trimethylbenzene	µg/L	5,100	< 1.0 U	< 0.5 U	< 10 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U
1,3-Dichlorobenzene	µg/L	3,100	< 1.0 U	**1.0**	< 10 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,3-Dichloropropane	µg/L	29	< 1.0 U	< 1.0 U	< 10 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,4-Dichlorobenzene	µg/L	75	< 1.0 U	**3.8**	< 10 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
2,2-Dichloropropane	µg/L	42	< 0.5 U	< 0.5 U	< 5.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
2-Butanone	µg/L	61,000	< 1.0 U	< 1.0 U	< 10 U	**68**	**160**	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
2-Chlorotoluene	µg/L	2,000	< 1.0 U	< 1.0 U	< 10 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
2-Hexanone	µg/L	6,100	< 2.0 U	< 2.0 U	< 20 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U
4-Chlorotoluene	µg/L	2,000	< 1.0 U	< 1.0 U	< 10 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
4-Isopropyltoluene	µg/L	10,000	< 1.0 U	< 1.0 U	< 10 U	< 0.5 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 1.0 U
4-Methyl-2-pentanone	µg/L	8,200	< 2.0 U	< 2.0 U	< 20 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U
Acetone	µg/L	92,000	< 2.0 U	< 1.0 U	< 20 U	**120**	< 2.0 U	< 1.0 U	< 2.0 U	< 2.0 U	< 1.0 U	< 2.0 U	< 1.0 U	< 2.0 U
Benzene	µg/L	5	< 0.5 U	**8.2**	**8.9 J**	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Bromobenzene	µg/L	2,000	< 1.0 U	< 1.0 U	< 10 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Bromochloromethane	µg/L	4,100	< 0.5 U	< 0.5 U	< 5.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Bromodichloromethane	µg/L	4.6	< 0.5 U	< 0.5 U	< 5.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Bromoform	µg/L	36	< 1.0 U	< 0.5 U	< 10 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U
Bromomethane	µg/L	140	< 1.0 U	< 0.5 U	< 10 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U
Carbon disulfide	µg/L	10,000	< 2.0 U	< 1.0 U	< 20 U	< 1.0 U	< 2.0 U	< 1.0 U	< 2.0 U	< 2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U
Carbon tetrachloride	µg/L	5	< 1.0 U	< 0.5 U	< 10 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U
Chlorobenzene	µg/L	100	< 1.0 U	**0.56 J**	< 10 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U
Chloroethane	µg/L	41,000	< 1.0 U	< 0.5 U	< 10 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U
Chloroform	µg/L	1,000	< 0.5 U	< 0.5 U	< 5.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Chloromethane	µg/L	220	< 0.5 U	< 0.5 U	< 5.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
cis-1,2-Dichloroethene	µg/L	70	< 0.5 U	**63**	**87**	**2.7**	**1.0**	< 0.5 U	< 0.5 U	< 0.5 U	**62**	**71**	< 0.5 U	< 0.5 U
cis-1,3-Dichloropropene	µg/L	5.3	< 0.5 U	< 0.5 U	< 5.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Dibromochloromethane	µg/L	34	< 1.0 U	< 0.5 U	< 10 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U
Dibromomethane	µg/L	380	< 0.5 U	< 0.5 U	< 5.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Dichlorodifluoromethane	µg/L	20,000	< 1.0 U	< 0.5 U	< 10 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U
Ethylbenzene	µg/L	700	< 1.0 U	< 1.0 U	< 10 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U
Hexachlorobutadiene	µg/L	20	< 1.0 UJ	< 1.0 U	< 10 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 UJ	< 1.0 UJ	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 UJ
Isopropylbenzene	µg/L	10,000	< 1.0 U	< 0.5 U	< 10 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
m,p-Xylene	µg/L	10,000	< 1.0 U	< 1.0 U	< 10 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Methylene chloride	µg/L	5	< 2.0 U	< 1.0 U	< 20 U	< 1.0 U	< 2.0 U	< 1.0 U	< 2.0 U	< 2.0 U	< 1.0 U	< 2.0 U	< 1.0 U	< 2.0 U
n-Butylbenzene	µg/L	4,100	< 1.0 U	< 1.0 U	< 10 U	**1.7**	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
n-Propylbenzene	µg/L	4,100	< 1.0 U	< 1.0 U	< 10 U	< 0.5 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Naphthalene	µg/L	2,000	< 1.0 U	< 0.5 U	< 10 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 1.0 U
o-Xylene	µg/L	10,000	< 1.0 U	< 1.0 U	< 10 U	< 0.5 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U
sec-Butylbenzene	µg/L	4,100	< 1.0 U	< 0.5 U	< 10 U	< 0.5 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 1.0 U
Styrene	µg/L	100	< 1.0 U	< 0.5 U	< 10 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
tert-Butylbenzene	µg/L	4,100	< 1.0 U	< 0.5 U	< 10 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 1.0 U
Tetrachloroethene	µg/L	5	< 1.0 U	< 0.5 U	< 10 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	**1.6**	**2.9**	< 0.5 U	< 1.0 U

Table 3. Western Plume Analytical Data, December 2020 and June 2021
LHAAP-58, Longhorn Army Ammunition Plant, Karnack, Texas
Year 7 RA(O) Report

Location ID: / Sample Date:	Units	MCL/MSC	35AWW19_060321 6/03/21	35AWW20_120320 12/3/20	35AWW20_060321 6/03/21	35AWW23_120320 12/3/20	35AWW23_060321 6/03/21	35AWW24_120320 12/3/20	35AWW24_060121 6/01/21	35AWW24_060121_a 6/01/21	LHSMW06_120320 12/3/20	LHSMW06_060321 6/03/21	LHSMW07_120320 12/3/20	LHSMW07_060221 6/02/21
Location Description			Site 58 - S, outside site boundary.	Site 58 - SW, inside site boundary.	Site 58 - SW, inside site boundary.	Site 58 - SW, outside site boundary.	Site 58 - SW, outside site boundary.	Downgradient Western Plume well	Downgradient Western Plume well	Downgradient Western Plume well Field Duplicate.	Site 58 - SW, inside site boundary, beside Building 715.	Site 58 - SW, inside site boundary, beside Building 715.	Site 58 - SW, outside site boundary.	Site 58 - SW, outside site boundary.
Location Depth			Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow
Lab Package			HS21060226	HS20120247	HS21060226	HS20120247	HS21060226	HS20120247	HS21060181	HS21060181	HS20120247	HS21060226	HS20120247	HS21060181
Volatile Organic Compounds (8260C)														
Toluene	µg/L	1,000	< 0.5 U	< 0.5 U	< 5.0 U	**1.5**	**14**	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
trans-1,2-Dichloroethene	µg/L	100	< 0.5 U	**6.7**	< 5.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	**1.3**	**1.2**	< 0.5 U	< 0.5 U
trans-1,3-Dichloropropene	µg/L	29	< 0.5 U	< 0.5 U	< 5.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Trichloroethene	µg/L	5	< 0.5 U	**91**	**190**	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	**14**	**19**	**2.1**	**0.91 J**
Trichlorofluoromethane	µg/L	31,000	< 1.0 U	< 0.5 U	< 10 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 1.0 U
Vinyl chloride		2	< 0.5 U	**1,800**	**780**	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	**4.8**	**3.2**	**42**	< 0.5 U
Total Organic Carbon (415.1/SM5310C)														
Total Organic Carbon	mg/L	NV	**2.38**	**12 J**	**20.5**	**21.4**	**19.7**	NA	NA	NA	NA	NA	**2.33**	**7.94**
Volatile Fatty Acids (HPLC-METACIDS)														
Acetic Acid	mg/L	NV	**0.62 J**	< 2.0 U	**0.61 J**	**65**	**9.1**	NA	NA	NA	NA	NA	< 2.0 U	**0.65 J**
Butyric Acid	mg/L	NV	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	NA	NA	NA	NA	< 1.0 U	< 1.0 U
Lactic Acid	mg/L	NV	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	NA	NA	NA	NA	< 1.0 U	< 1.0 U
Propionic Acid	mg/L	51	< 1.5 U	< 1.0 U	< 1.5 U	**2.8**	< 1.5 U	NA	NA	NA	NA	NA	< 1.0 U	< 1.5 U
Pyruvic Acid	mg/L	NV	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	NA	NA	NA	NA	NA	< 0.10 U	< 0.10 U
ICP-MS Metals (6020A)														
Arsenic	mg/L	0.01	NA	NA	**0.00293 J**	NA	NA	NA	NA	NA	**0.000481 J**	**0.000545 J**	NA	NA
Anions (9056A)														
Chloride	mg/L	NV	**746**	**727**	**615**	**958**	**846**	NA	NA	NA	NA	NA	**1,650**	**1,760**
Nitrate	mg/L	10	< 0.200 U	< 0.100 U	< 0.200 U	< 0.100 U	< 0.200 U	NA	NA	NA	NA	NA	< 0.200 U	< 0.500 U
Sulfate	mg/L	NV	**857**	**1,070**	**955**	< 0.500 U	**0.401 J**	NA	NA	NA	NA	NA	**2,650**	**2,720**
Dissolved Gases (RSK-175)														
Carbon Dioxide	µg/L	NV	**670,000**	**370,000 J**	**690,000**	**540,000 J**	**540,000**	NA	NA	NA	NA	NA	**260,000 J**	**300,000**
Ethane	µg/L	NV	< 0.47 U	< 0.47 U	< 0.47 U	< 0.47 U	< 0.47 U	NA	NA	NA	NA	NA	**0.42 J**	**0.31 J**
Ethene	µg/L	NV	< 0.55 U	**11**	**11**	< 0.55 U	< 0.55 U	NA	NA	NA	NA	NA	**5.9**	**19**
Methane	µg/L	NV	**2.2**	**1,000**	**1,500**	**3,700**	**3,700**	NA	NA	NA	NA	NA	**810**	**680**
Dechlorinating Bacteria														
BAV1 Vinyl Chloride Reductase	cells/mL	NV	< 0.50 U	**6,550**	**55,800**	< 0.50 U	**0.30 J**	NA	NA	NA	NA	NA	**1.2**	< 0.60 U
Dehalobacter spp.	cells/mL	NV	**24,900**	**436**	**13,400**	< 5.3 U	**8,200**	NA	NA	NA	NA	NA	**17,500**	**3,640**
Dehalococoides	cells/mL	NV	**16.1**	**7,800**	**72,200**	**557**	**3,220**	NA	NA	NA	NA	NA	**7,580**	**4,430**
tceA Reductase	cells/mL	NV	< 0.50 U	< 0.50 U	**0.50 J**	**37.6**	**143**	NA	NA	NA	NA	NA	< 0.60 U	**0.70**
Vinyl Chloride Reductase	cells/mL	NV	< 0.50 U	< 0.50 U	**2.10**	**30.1**	**408**	NA	NA	NA	NA	NA	**400**	**8,370**
Field Parameters														
Temperature	^{0}C	NV	20.34	17.72	22.57	16.07	20.84	17.65	22.09		16.92	21.83	15.90	21.20
pH	s.u.	5-9	5.32	6.37	6.25	6.32	6.44	4.88	5.66		6.61	5.98	6.53	6.52
DO	mg/L	< 0.5	0.11	0.61	0.11	0.07	0.04	0.17	0.31		0.16	0.12	0.14	0.13
ORP	mV	< 0.0	122	94	84	-41	-129	156	166		75	166	10	-144

Notes:

Blue Highlighting Indicates concentrations above the MCL/MSC

MCL/MSC - Maximum Contaminant Limit/Medium-Specific Concentrations

NA - Not Analyzed

µg/L - micrograms per liter

mg/L - milligrams per liter

J - Estimated: Between the method detection limit and reporting limit and/or due to disc

UJ - The analyte was not detected; however, the result is estimated due to discrepancies

U - Undetected: The analyte was analyzed for, but not detected.

NV - No Value

Table 4
Historical Monitoring Well COC Concentrations
LHAAP-58, Longhorn Army Ammunition Plan, Karnack, Texas
Year 7 RA(O) Report

Sample Identification: / Sample Date:	Units	MCL	03WW01-11/24/2008		03WW01-5/9/2011		03WW01-082013 8/20/2013		03WW01-101013 10/10/2013		03WW01-12914 1/29/2014		03WW01-052114 5/21/2014		03WW01-102814 10/28/2014		03WW01-012115 1/21/2015		03WW01-041515 4/15/2015		03WW01-070815 7/8/2015		03WW01-100815 10/8/2015		03WW01-041316 4/13/2016		03WW01-100416 10/4/2016		03WW01-111517 11/15/2017	
1,1-DICHLOROETHENE	µg/L	7	<20	U	<2.5	U	<2	U	<5	U	<10	U	<10	U	<100	U	<100	U	<50	U	<100	U	<100	U	<25	U	<10	U	<2.5	U
CIS-1,2-DICHLOROETHENE	µg/L	70	<20	U	1.1		0.978		<2.5	U	<5	U	3.3		<50	U	<50	U	21.4		<50	U	<50	U	117		<5	U	<2.5	U
TETRACHLOROETHENE	µg/L	5	2,570		418		368		172		172		154		48.6		32.8		15.9		31.4		36.4		6.49		<5	U	<2.5	U
TRANS-1,2-DICHLOROETHENE	µg/L	100	<20	U	<2.5	U	<1	U	<2.5	U	<5	U	<5	U	<50	U	<50	U	<25	U	<50	U	<50	U	<12.5	U	<5	U	<2.5	U
TRICHLOROETHENE	µg/L	5	196		69.1		94.8		42.1		58.4		71.2		223		216		131		65.6		51.8		<12.5	U	<5	U	<2.5	U
VINYL CHLORIDE	µg/L	2	<20	U	<2.5	U	<1	U	<2.5	U	<5	U	<5	U	<50	U	<50	U	<25	U	<50	U	<50	U	<12.5	U	<5	U	<2.5	U

Notes:
Blue Highlighting Indicates Analyte Detected Above MCL
µg/L - micrograms per liter
MCL - Maximum Contaminant Level
NA - not analyzed
J - Estimated value; analyte concentration was less than the limit of quantification
U - Analyte was not detected.
UJ - The analysis was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample. 'UJ' not detects are not definite; the analyte may be present.

Table 4
Historical Monitoring Well COC Concentrations
LHAAP-58, Longhorn Army Ammunition Plan, Karnack, Texas
Year 7 RA(O) Report

Sample Identification: / Sample Date:	Units	MCL	03WW01-071818 7/18/2018		03WW01_121218 12/12/2018		03WW01_060419 6/4/2019		03WW01_121819 12/18/2019		03WW01_062320 6/23/2020		03WW01_120120 12/1/20		03WW01_060221 6/02/21		35ASW03-101713 10/17/2013		35ASW03-020314 2/3/2014		35ASW03-052814 5/28/2014		35ASW03-012315 1/23/2015		35ASW03-041015 4/10/2015	
1,1-DICHLOROETHENE	µg/L	7	<0.5	U	<0.5	U	<2.5	U	<5.0	U	< 2.5	U	< 5.0	U	< 5.0	U	<1	U	<1	U	<1	U	<1	U	<1	U
CIS-1,2-DICHLOROETHENE	µg/L	70	5.3		22		41		14		17		7.2	J	11		<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U
TETRACHLOROETHENE	µg/L	5	<0.5	U	15		3.2		<5.0	U	4.5	J	< 5.0	U	11		<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U
TRANS-1,2-DICHLOROETHENE	µg/L	100	<0.5	U	<0.5	U	<2.5	U	<5.0	U	< 2.5	U	< 5.0	U	< 5.0	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U
TRICHLOROETHENE	µg/L	5	<0.5	U	5.7		2.9		<5.0	U	4.5	J	24		3.0		<0.5	U	<0.5	U	<0.5	U	<0.5	U	0.259	J
VINYL CHLORIDE	µg/L	2	4.8		7.6		11		5.4	J	7.2		< 5.0	U	1.6		<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U

Notes:
Blue Highlighting Indicates Analyte Detected Above MCl
µg/L - micrograms per liter
MCL - Maximum Contaminant Level
NA - not analyzed
J - Estimated value; analyte concentration was less than the limit of quantification
U - Analyte was not detected.
UJ - The analysis was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample. 'UJ' not detects are not definite; the analyte may be present.

Table 4
Historical Monitoring Well COC Concentrations
LHAAP-58, Longhorn Army Ammunition Plan, Karnack, Texas
Year 7 RA(O) Report

Sample Identification: / Sample Date:	Units	MCL	35ASW03-041316 4/13/2016	35ASW03_060321 6/03/21	35AWW01-981108 11/8/1998	35AWW01-981108FD 11/8/1998	35AWW01-040909 9/9/2004	35AWW01-020608 2/6/2008	35AWW01-111908 11/19/2008	35AWW01-101113 10/11/2013	35AWW01-013114 1/31/2014	35AWW01FD-013114 1/31/2014	35AWW01-052914 5/29/2014	35AWW01-103114 10/31/2014
1,1-DICHLOROETHENE	µg/L	7	<1 U	<1 U	<1 U	<1 U	<5 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U
CIS-1,2-DICHLOROETHENE	µg/L	70	<0.5 U	<0.5 U	<1 U	<1 U	<5 U	<1 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
TETRACHLOROETHENE	µg/L	5	<0.5 U	<0.5 U	<1 U	<1 U	<5 U	<1 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
TRANS-1,2-DICHLOROETHENE	µg/L	100	<0.5 U	<0.5 U	<1 U	<1 U	<5 U	<1 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
TRICHLOROETHENE	µg/L	5	<0.5 U	<0.5 U	<1 U	<1 U	<5 U	<1 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
VINYL CHLORIDE	µg/L	2	<0.5 U	<0.5 U	<1 U	<1 U	<5 U	<1 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U

Notes:
Blue Highlighting Indicates Analyte Detected Above MCl
µg/L - micrograms per liter
MCL - Maximum Contaminant Level
NA - not analyzed
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Table 4
Historical Monitoring Well COC Concentrations
LHAAP-58, Longhorn Army Ammunition Plan, Karnack, Texas
Year 7 RA(O) Report

Sample Identification: / Sample Date:	Units	MCL	35AWW01-012715 1/27/2015	35AWW01-041015 4/10/2015	35AWW01FD-041015 4/10/2015	35AWW01-071015 7/10/2015	35AWW01FD-071015 7/10/2015	35AWW01-100615 10/6/2015	35AWW01FD-100615 10/6/2015	35AWW01-041216 4/12/2016	35AWW01FD-041216 4/12/2016	35AWW01-100516 10/5/2016	35WW01-111617 11/16/2017	35AWW01-070218 7/2/2018
1,1-DICHLOROETHENE	µg/L	7	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<0.5 U	<0.5 UJ
CIS-1,2-DICHLOROETHENE	µg/L	70	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 UJ
TETRACHLOROETHENE	µg/L	5	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
TRANS-1,2-DICHLOROETHENE	µg/L	100	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
TRICHLOROETHENE	µg/L	5	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
VINYL CHLORIDE	µg/L	2	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 UJ

Notes:
Blue Highlighting Indicates Analyte Detected Above MCl
µg/L - micrograms per liter
MCL - Maximum Contaminant Level
NA - not analyzed
J - Estimated value; analyte concentration was less than the limit of quantification
U - Analyte was not detected.
UJ - The analysis was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample. 'UJ' not detects are not definite; the analyte may be present.

Table 4
Historical Monitoring Well COC Concentrations
LHAAP-58, Longhorn Army Ammunition Plan, Karnack, Texas
Year 7 RA(O) Report

Sample Identification: / Sample Date:	Units	MCL	35AWW01_121318 12/13/2018	35AWW01_061019 6/10/2019	35AWW01_122019 12/20/2019	35AWW01_062520 6/25/2020	35AWW01_062520-a 6/25/2020	35AWW01_120720 12/7/20	35AWW01_060121 6/01/21	35AWW01_060121-a 6/01/21	35AWW02-981108 11/8/1998	35AWW02-040910 9/10/2004	35AWW02-112608 11/26/2008	35AWW02-112608-FD 11/26/2008
1,1-DICHLOROETHENE	µg/L	7	<0.5 U	<0.5 U	<0.5 UJ	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<5 U	<1 U	<1 U
CIS-1,2-DICHLOROETHENE	µg/L	70	<0.5 U	<0.5 U	<0.5 UJ	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<5 U	<1 U	<1 U
TETRACHLOROETHENE	µg/L	5	<0.5 U	<0.5 U	<0.5 UJ	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1 U	<5 U	<1 U	<1 U
TRANS-1,2-DICHLOROETHENE	µg/L	100	<0.5 U	<0.5 U	<0.5 UJ	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<5 U	<1 U	<1 U
TRICHLOROETHENE	µg/L	5	<0.5 U	<0.5 U	<0.5 UJ	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<5 U	<1 U	<1 U
VINYL CHLORIDE	µg/L	2	<0.5 U	<0.5 U	<0.5 UJ	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<5 U	<1 U	<1 U

Notes:
Blue Highlighting Indicates Analyte Detected Above MCl
µg/L - micrograms per liter
MCL - Maximum Contaminant Level
NA - not analyzed
J - Estimated value; analyte concentration was less than the limit of quantification
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Table 4
Historical Monitoring Well COC Concentrations
LHAAP-58, Longhorn Army Ammunition Plan, Karnack, Texas
Year 7 RA(O) Report

Sample Identification: / Sample Date:	Units	MCL	35AWW02-102213 10/22/2013	35AWW05-040908 9/8/2004	35AWW05-112108 11/21/2008	35AWW05-101613 10/16/2013	35AWW05-020114 2/1/2014	35AWW05-052214 5/22/2014	35AWW05FD-052214 5/22/2014	35AWW05-102114 10/21/2014	35AWW05-012315 1/23/2015	35AWW05FD-012315 1/23/2015	35AWW05-040815 4/8/2015	35AWW05-071015 7/10/2015
1,1-DICHLOROETHENE	µg/L	7	<1 U	<5 U	0.551 J	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U
CIS-1,2-DICHLOROETHENE	µg/L	70	<0.5 U	<5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
TETRACHLOROETHENE	µg/L	5	<0.5 U	<5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
TRANS-1,2-DICHLOROETHENE	µg/L	100	<0.5 U	<5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
TRICHLOROETHENE	µg/L	5	<0.5 U	<5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
VINYL CHLORIDE	µg/L	2	<0.5 U	<5 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U

Notes:
Blue Highlighting Indicates Analyte Detected Above MCl
µg/L - micrograms per liter
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Table 4
Historical Monitoring Well COC Concentrations
LHAAP-58, Longhorn Army Ammunition Plan, Karnack, Texas
Year 7 RA(O) Report

Sample Identification: / Sample Date:	Units	MCL	35AWW05-100515 10/2/2015	35AWW05-041416 4/14/2016	35AWW05-100516 10/5/2016	35AWW05-111317 11/13/2017	35AWW05-070218 7/2/2018	35AWW05-070218_a 7/2/2018	35AWW05_121218 12/12/2018	35AWW05_061019 6/10/2019	35AWW05_120320 12/3/20	35AWW05_060221 6/02/21	35AWW06-120308 12/3/2008	35AWW06-110509 5/9/2011
1,1-DICHLOROETHENE	µg/L	7	<1 U	<1 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	57.6	21.3
CIS-1,2-DICHLOROETHENE	µg/L	70	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.37 J	<1 U
TETRACHLOROETHENE	µg/L	5	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	7.19	<1 U
TRANS-1,2-DICHLOROETHENE	µg/L	100	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
TRICHLOROETHENE	µg/L	5	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.811 J	<1 U
VINYL CHLORIDE	µg/L	2	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U

Notes:
Blue Highlighting Indicates Analyte Detected Above MCl
µg/L - micrograms per liter
MCL - Maximum Contaminant Level
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Table 4
Historical Monitoring Well COC Concentrations
LHAAP-58, Longhorn Army Ammunition Plan, Karnack, Texas
Year 7 RA(O) Report

Sample Identification: / Sample Date:	Units	MCL	35AWW06-101513 10/15/2013	35AWW06-013014 1/30/2014	35AWW06-052114 5/21/2014	35AWW06-102914 10/29/2014	35AWW06-012815 1/28/2015	35AWW06-041515 4/15/2015	35AWW06-070715 7/7/2015	35AWW06-100715 10/7/2015	35AWW06-041116 4/11/2016	35AWW06-100316 10/3/2016	35AWW06-111417 11/14/2017	35AWW06-71818 7/18/2018
1,1-DICHLOROETHENE	µg/L	7	15.8	14.2	12	16	13.5	4.17	18.6	12.8	13	7.48	3.9	<0.5 UJ
CIS-1,2-DICHLOROETHENE	µg/L	70	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 UJ
TETRACHLOROETHENE	µg/L	5	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 UJ
TRANS-1,2-DICHLOROETHENE	µg/L	100	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 UJ
TRICHLOROETHENE	µg/L	5	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 UJ
VINYL CHLORIDE	µg/L	2	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 UJ

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Table 4
Historical Monitoring Well COC Concentrations
LHAAP-58, Longhorn Army Ammunition Plan, Karnack, Texas
Year 7 RA(O) Report

Sample Identification: / Sample Date:	Units	MCL	35AWW06_092 618 9/26/2018		35AWW06_121 118 12/11/2018		35AWW06_031 919 03/19/2019		35AWW06_031 919_a 03/19/2019		35AWW06_060 419 6/4/2019		35AWW06_091 119 9/11/2019		35AWW06_091 119_a 9/11/2019		35AWW06_121 919 12/19/2019		35AWW06_032 420 03/24/2020		35AWW06_062 420 6/24/2020		35AWW06_120 120 12/1/20		35AWW06_060 321 6/03/21	
1,1-DICHLOROETHENE	µg/L	7	<0.5	U	3.4		<0.5	U	1.4		<0.5	U	0.92	J	0.88	J	<0.5	UJ	0.78	J	0.99	J	0.78	J	0.9	J
CIS-1,2-DICHLOROETHENE	µg/L	70	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	UJ	<0.5	U	<0.5	U	<0.5	U	<0.5	U
TETRACHLOROETHENE	µg/L	5	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	UJ	<0.5	U	<0.5	U	<0.5	U	<0.5	U
TRANS-1,2-DICHLOROETHENE	µg/L	100	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	UJ	<0.5	U	<0.5	U	<0.5	U	<0.5	U
TRICHLOROETHENE	µg/L	5	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	UJ	<0.5	U	<0.5	U	<0.5	U	<0.5	U
VINYL CHLORIDE	µg/L	2	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	UJ	<0.5	U	0.51	J	<0.5	U	<0.5	U

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Table 4
Historical Monitoring Well COC Concentrations
LHAAP-58, Longhorn Army Ammunition Plan, Karnack, Texas
Year 7 RA(O) Report

Sample Identification: / Sample Date:	Units	MCL	35AWW07R-101613 10/16/2013	35AWW08-112408 11/24/2008	35AWW08-110509 5/9/2011	35AWW08-082013 8/20/2013	35AWW08-101013 10/10/2013	35AWW08-012914 1/29/2014	35AWW08-052014 5/20/2014	35AWW08-102714 10/27/2014	35AWW08-012115 1/21/2015	35AWW08-041515 4/15/2015	35AWW08-070815 7/8/2015
1,1-DICHLOROETHENE	µg/L	7	<1 U	<100 U	<25 U	<10 U	<10 U	<10 U	<10 U	<50 U	<50 U	<50 U	<100 U
CIS-1,2-DICHLOROETHENE	µg/L	70	0.709 J	<100 U	13.4 J	9.35 J	<5 U	55.9	47.2	38.6 J	27.2 J	30.7 J	73.5 J
TETRACHLOROETHENE	µg/L	5	0.586 J	9,590	6,480	1,640	603 J	599	204	112	119	110	110
TRANS-1,2-DICHLOROETHENE	µg/L	100	<0.5 U	<100 U	<25 U	<5 U	<5 U	<5 U	2.82 J	<25 U	<25 U	<25 U	<50 U
TRICHLOROETHENE	µg/L	5	1.03	675	1,150	544	149 J	895	953	653	491	607	746
VINYL CHLORIDE	µg/L	2	<0.5 U	<100 U	<25 U	<5 U	<5 U	<5 U	<5 U	<25 U	<25 U	<25 U	<50 U

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Historical Monitoring Well COC Concentrations
LHAAP-58, Longhorn Army Ammunition Plan, Karnack, Texas
Year 7 RA(O) Report

Sample Identification: / Sample Date:	Units	MCL	35AWW08-100815 10/8/2015	35AWW08-041316 4/13/2016	35AWW08-100416 10/4/2016	35AWW08-111517 11/15/2017	35AWW08-071818 7/18/2018	35AWW08-111517 12/12/2018	35AWW08-071818 6/4/2019	35AWW08_121819 12/18/2019	35AWW08_062320 6/23/2020	35AWW08_120120 12/1/20	35AWW08_060221 6/02/21	35AWW09-082913 8/29/2013
1,1-DICHLOROETHENE	µg/L	7	<25 U	<25 U	<10 U	<5 U	<2.5 UJ	<0.5 U	<2.5 U	< 5.0 U	< 2.5 U	< 5.0 U	< 12 U	<1 U
CIS-1,2-DICHLOROETHENE	µg/L	70	79.6	60.9	41.7	38	12 J	8.9 J	<2.5 U	< 5.0 U	7.3	18	30	<0.5 U
TETRACHLOROETHENE	µg/L	5	79	80.1	36.9	12	<2.5 UJ	< 5.0 U	4.8 J	< 5.0 U	6.7	< 5.0 U	< 25 U	21.9
TRANS-1,2-DICHLOROETHENE	µg/L	100	<12.5 U	<12.5 U	<5 U	<5 U	<2.5 U	<0.5 U	<2.5 U	< 5.0 U	4.5 J	< 5.0 U	< 12 U	<0.5 U
TRICHLOROETHENE	µg/L	5	581	234	235	33	19 J	12	13	< 5.0 U	17	< 5.0 U	53	11.9
VINYL CHLORIDE	µg/L	2	<12.5 U	14.2 J	7.46 J	<5 U	9.0 J	<0.5 U	<2.5 U	< 5.0 U	<2.5 U	6.1 J	24 J	<0.5 U

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Historical Monitoring Well COC Concentrations
LHAAP-58, Longhorn Army Ammunition Plan, Karnack, Texas
Year 7 RA(O) Report

Sample Identification: / Sample Date:	Units	MCL	35AWW09-101013 10/10/2013		35AWW09-012914 1/29/2014		35AWW09-052014 5/20/2014		35AWW09-102714 10/27/2014		35AWW09-012115 1/21/2015		35AWW09-041415 4/14/2015		35AWW09-070715 7/7/2015		35AWW09-100715 10/7/2015		35AWW09-041216 4/12/2016		35AWW09-100316 10/3/2016		35AWW09-111517 11/15/2017		35AWW09-071618 7/12/2018	
1,1-DICHLOROETHENE	µg/L	7	<1	UJ	<1	U	<1	U	<1	U	<1	U	<1	U	<1	U	<1	U	<1	U	<1	U	<0.5	U	2.7	
CIS-1,2-DICHLOROETHENE	µg/L	70	<0.5	UJ	0.317	J	0.502	J	0.703	J	0.486	J	0.483	J	0.622	J	0.717	J	0.515	J	0.437	J	0.78	J	0.94	J
TETRACHLOROETHENE	µg/L	5	57.6	J	125		128		254		183		155		194		283		172		173		450		130	
TRANS-1,2-DICHLOROETHENE	µg/L	100	<0.5	UJ	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U
TRICHLOROETHENE	µg/L	5	8.97	J	37.3		41.7		93		64.3		45		59.5		81.3		55.7		48.2		150		38	
VINYL CHLORIDE	µg/L	2	<0.5	UJ	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U

Notes:
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µg/L - micrograms per liter
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Table 4
Historical Monitoring Well COC Concentrations
LHAAP-58, Longhorn Army Ammunition Plan, Karnack, Texas
Year 7 RA(O) Report

Sample Identification: / Sample Date:	Units	MCL	35AWW09_121 118 12/11/2018		35AWW09_060 319 6/3/2019		35AWW09_121 819 12/18/2019		35AWW09_062 320 6/23/2020		35AWW09_120 720 12/7/20		35AWW09_060 221 6/02/21		35AWW09_060 221-a 6/02/21		35AWW10-082913 8/29/2013		35AWW10-101013 10/10/2013		35AWW10-012914 1/29/2014		35AWW10-052014 5/20/2014		35AWW10-102814 10/28/2014	
1,1-DICHLOROETHENE	µg/L	7	<0.5	U	<0.5	U	<0.5	U	<0.5	U	< 5.0	U	< 5.0	U	< 5.0	U	<1	U	<1	U	<1	U	<1	U	<1	U
CIS-1,2-DICHLOROETHENE	µg/L	70	0.94	J	<0.5	U	1.1		1.1		1.1		0.88	J	0.89	J	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U
TETRACHLOROETHENE	µg/L	5	150		130		500		440		370		350		310		<0.5	U	<0.5	U	<0.5	U	0.401	J	<0.5	U
TRANS-1,2-DICHLOROETHENE	µg/L	100	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U
TRICHLOROETHENE	µg/L	5	150		38		160		140		140		130	J	130	J	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U
VINYL CHLORIDE	µg/L	2	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U

Notes:
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µg/L - micrograms per liter
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Historical Monitoring Well COC Concentrations
LHAAP-58, Longhorn Army Ammunition Plan, Karnack, Texas
Year 7 RA(O) Report

Sample Identification: / Sample Date:	Units	MCL	35AWW10-012715 1/27/2015	35AWW10-041415 4/14/2015	35AWW10-070715 7/7/2015	35AWW10-100715 10/7/2015	35AWW10-041316 4/13/2016	35AWW10-100316 10/3/2016	35AWW10-111517 11/15/2017	35AWW10-071218 07/12/2018	35AWW10_121218 12/12/18	35AWW10_121218_a 12/12/2018	35AWW10_060419 6/4/2019	35AWW10_060419_a 6/4/2019
1,1-DICHLOROETHENE	µg/L	7	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
CIS-1,2-DICHLOROETHENE	µg/L	70	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
TETRACHLOROETHENE	µg/L	5	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
TRANS-1,2-DICHLOROETHENE	µg/L	100	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
TRICHLOROETHENE	µg/L	5	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
VINYL CHLORIDE	µg/L	2	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U

Notes:
Blue Highlighting Indicates Analyte Detected Above MCl
µg/L - micrograms per liter
MCL - Maximum Contaminant Level
NA - not analyzed
J - Estimated value; analyte concentration was less than the limit of quantification
U - Analyte was not detected.
UJ - The analysis was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample. 'UJ' not detects are not definite; the analyte may be present.

Table 4
Historical Monitoring Well COC Concentrations
LHAAP-58, Longhorn Army Ammunition Plan, Karnack, Texas
Year 7 RA(O) Report

Sample Identification: / Sample Date:	Units	MCL	35AWW10_121919 12/19/2019	35AWW10_121919-a 12/19/2019	35AWW10_062920 6/29/2020	35AWW10_120720 12/7/20	35AWW10_120720-a 12/7/20	35AWW10_060121 6/01/21	35AWW11-101513 10/15/2013	35AWW11-020314 2/3/2014	35AWW11-052114 5/21/2014	35AWW11-102914 10/29/2014	35AWW11-012715 1/27/2015	35AWW11-041415 4/14/2015
1,1-DICHLOROETHENE	µg/L	7	<0.5 UJ	<0.5 UJ	<0.5 U	<0.5 U	<0.5 U	<0.5 U	7.7	10.1	11.6	21.9	12.5	13.5
CIS-1,2-DICHLOROETHENE	µg/L	70	<0.5 UJ	<0.5 UJ	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
TETRACHLOROETHENE	µg/L	5	<0.5 UJ	<0.5 UJ	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
TRANS-1,2-DICHLOROETHENE	µg/L	100	<0.5 UJ	<0.5 UJ	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
TRICHLOROETHENE	µg/L	5	<0.5 UJ	<0.5 UJ	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
VINYL CHLORIDE	µg/L	2	<0.5 UJ	<0.5 UJ	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.442 J	<0.5 U	<0.5 U	0.369 J	<0.5 U	0.273 J

Notes:
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Table 4
Historical Monitoring Well COC Concentrations
LHAAP-58, Longhorn Army Ammunition Plan, Karnack, Texas
Year 7 RA(O) Report

Sample Identification: / Sample Date:	Units	MCL	35AWW11-070815 7/8/2015		35AWW11-100715 10/7/2015		35AWW11-041216 4/12/2016		35AWW11-100316 10/3/2016		35AWW11-111417 11/14/2017		35AWW11-071618 07/16/2018		35AWW11_092718 9/27/2018		35AWW11_121118 12/11/2018		35AWW11_031919 03/19/2019		35AWW11_060319 6/3/2019		35AWW11_091119 9/11/2019		35AWW11_121819 12/18/2019	
1,1-DICHLOROETHENE	µg/L	7	16.8		14.7		21.3		16		12		9		2.3		1.6		<0.5	U	<0.5	U	<0.5	U	<0.5	U
CIS-1,2-DICHLOROETHENE	µg/L	70	0.292	J	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U
TETRACHLOROETHENE	µg/L	5	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U
TRANS-1,2-DICHLOROETHENE	µg/L	100	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U
TRICHLOROETHENE	µg/L	5	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U
VINYL CHLORIDE	µg/L	2	<0.5	U	<0.5	U	0.532	J	0.328	J	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U

Notes:
Blue Highlighting Indicates Analyte Detected Above MCl
µg/L - micrograms per liter
MCL - Maximum Contaminant Level
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Historical Monitoring Well COC Concentrations
LHAAP-58, Longhorn Army Ammunition Plan, Karnack, Texas
Year 7 RA(O) Report

Sample Identification: / Sample Date:	Units	MCL	35AWW11_032420 03/24/2020	35AWW11_032420-a 03/24/2020	35AWW11_062320 6/23/2020	35AWW11_120120 12/1/20	35AWW11_120120_a 12/1/20	35AWW11_060221 6/02/21	35AWW12-101813 10/18/2013	35AWW12FD-101813 10/18/2013	35AWW12-013114 1/31/2014	35AWW12FD-013114 1/31/2014	35AWW12-052914 5/29/2014	35AWW12-103014 10/30/2014
1,1-DICHLOROETHENE	µg/L	7	<0.5 U	<0.5 U	<0.5 U	0.53 J	<0.5 U	0.62 J	<0.5 U	<1 U	<1 U	<1 U	<1 U	<1 U
CIS-1,2-DICHLOROETHENE	µg/L	70	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
TETRACHLOROETHENE	µg/L	5	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1.0 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	0.343 J
TRANS-1,2-DICHLOROETHENE	µg/L	100	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
TRICHLOROETHENE	µg/L	5	1.4	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
VINYL CHLORIDE	µg/L	2	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U

Notes:
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Table 4
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LHAAP-58, Longhorn Army Ammunition Plan, Karnack, Texas
Year 7 RA(O) Report

Sample Identification: / Sample Date:	Units	MCL	35AWW12-012815 1/28/2015	35AWW12-040715 4/7/2015	35AWW12FD-040715 4/7/2015	35AWW12-070915 7/9/2015	35AWW12-100515 10/5/2015	35AWW12FD-100515 10/5/2015	35AWW12-041216 4/12/2016	35AWW12-100516 10/5/2016	35AWW12FD-100516 10/5/2016	35AWW12-111617 11/16/2017	35AWW12-062918 06/29/2018	35AWW12_121418 12/14/2018
1,1-DICHLOROETHENE	µg/L	7	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<0.5 U	<0.5 U	<0.5 U
CIS-1,2-DICHLOROETHENE	µg/L	70	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 UJ	<0.5 UJ	<0.5 U
TETRACHLOROETHENE	µg/L	5	0.326 J	0.279 J	0.251 J	<0.5 U	0.511 J	0.426 J	<0.5 U	<0.5 U	<0.5 U	<0.5 UJ	<0.5 UJ	<0.5 U
TRANS-1,2-DICHLOROETHENE	µg/L	100	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 UJ	<0.5 UJ	<0.5 U
TRICHLOROETHENE	µg/L	5	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 UJ	<0.5 UJ	<0.5 U
VINYL CHLORIDE	µg/L	2	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U

Notes:
Blue Highlighting Indicates Analyte Detected Above MCl
µg/L - micrograms per liter
MCL - Maximum Contaminant Level
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LHAAP-58, Longhorn Army Ammunition Plan, Karnack, Texas
Year 7 RA(O) Report

Sample Identification: / Sample Date:	Units	MCL	35AWW12_121418 12/14/2018	35AWW12_061019a 6/10/2019	35AWW12_121819 12/18/2019	35AWW12_062520 6/25/2020	35AWW12_120720 12/7/20	35AWW12_060221 6/02/21	35AWW13-101113 10/11/2013	35AWW13FD-101113 10/11/2013	35AWW13-020314 2/3/2014	35AWW13-052214 5/22/2014	35AWW13-102114 10/21/2014	35AWW13FD-102114 10/21/2014
1,1-DICHLOROETHENE	µg/L	7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U
CIS-1,2-DICHLOROETHENE	µg/L	70	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
TETRACHLOROETHENE	µg/L	5	<0.5 U	<0.5 U	<0.5 U	<1.0 U	<0.5 U	<1.0 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
TRANS-1,2-DICHLOROETHENE	µg/L	100	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
TRICHLOROETHENE	µg/L	5	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
VINYL CHLORIDE	µg/L	2	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U

Notes:
Blue Highlighting Indicates Analyte Detected Above MCl
µg/L - micrograms per liter
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Table 4
Historical Monitoring Well COC Concentrations
LHAAP-58, Longhorn Army Ammunition Plan, Karnack, Texas
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Sample Identification: / Sample Date:	Units	MCL	35AWW13-012315 1/23/2015	35AWW13-040815 4/8/2015	35AWW13-070915 7/9/2015	35AWW13-100615 10/6/2015	35AWW13-041316 4/13/2016	35AWW13-100616 10/6/2016	35AWW13-111617 11/16/2017	35AWW13-062818 06/29/2018	35AWW13_121118 12/11/2018	35AWW13_060719 6/7/2019	35AWW13_121819 12/18/2019	35AWW13_062920 6/29/2020
1,1-DICHLOROETHENE	µg/L	7	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
CIS-1,2-DICHLOROETHENE	µg/L	70	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
TETRACHLOROETHENE	µg/L	5	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
TRANS-1,2-DICHLOROETHENE	µg/L	100	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
TRICHLOROETHENE	µg/L	5	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
VINYL CHLORIDE	µg/L	2	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U

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LHAAP-58, Longhorn Army Ammunition Plan, Karnack, Texas
Year 7 RA(O) Report

Sample Identification: / Sample Date:	Units	MCL	35AWW13_120720 12/7/20		35AWW13_060121 6/01/21		35AWW14-101813 10/18/2013		35AWW14-013114 1/31/2014		35AWW14-052814 5/28/2014		35AWW14FD-052814 5/28/2014		35AWW14-103014 10/30/2014		35AWW14-012115 1/21/2015		35AWW14-040715 4/7/2015		35AWW14-070915 7/9/2015		35AWW14-100215 10/2/2015		35AWW14-041316 4/13/2016	
1,1-DICHLOROETHENE	µg/L	7	<0.5	U	<0.5	U	1.63	J	1.63	J	1.22	J	1.07	J	1.57	J	1.8	J	1.78	J	1.7	J	2.47		3.25	
CIS-1,2-DICHLOROETHENE	µg/L	70	<0.5	U	<0.5	U	2.04		1.75		1.46		1.47		1.94		1.91		2.08		1.7		1.96		1.78	
TETRACHLOROETHENE	µg/L	5	<0.5	U	<1.0	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U
TRANS-1,2-DICHLOROETHENE	µg/L	100	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U
TRICHLOROETHENE	µg/L	5	<0.5	U	<0.5	U	0.663	J	0.669	J	0.612	J	0.565	J	0.806	J	0.707	J	0.786	J	0.632	J	1.06		1.79	
VINYL CHLORIDE	µg/L	2	<0.5	U	<0.5	U	0.272	J	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U

Notes:
Blue Highlighting Indicates Analyte Detected Above MCl
µg/L - micrograms per liter
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Historical Monitoring Well COC Concentrations
LHAAP-58, Longhorn Army Ammunition Plan, Karnack, Texas
Year 7 RA(O) Report

Sample Identification: / Sample Date:	Units	MCL	35AWW14-100616 10/6/2016		35AWW14-111717 11/17/2017		35AWW14-071818 07/18/2018		35AWW14_121318 12/13/2018		35AWW14_060719 6/7/19		35AWW14_121919 12/19/2019		35AWW14_062520 6/25/2020		35AWW14_120720 12/7/20		35AWW14_060121 6/01/21		35AWW15-101613 10/16/2013		35AWW15FD-101613 10/16/2013		35AWW15-020114 2/1/2014	
1,1-DICHLOROETHENE	µg/L	7	10.4		8.7		9.7	J	10		12		15	J	9.3		9.4		10		<1	U	<1	U	<1	U
CIS-1,2-DICHLOROETHENE	µg/L	70	5.09		3.5		4.0	J	4.6		5.2		3.7	J	4.6		4.5		5.0		<0.5	U	<0.5	U	<0.5	U
TETRACHLOROETHENE	µg/L	5	<0.5	U	<0.5	U	<0.5	UJ	<0.5	U	<0.5	U	<0.5	UJ	<1.0	U	<0.5	U	<1.0	U	<0.5	U	<0.5	U	<0.5	U
TRANS-1,2-DICHLOROETHENE	µg/L	100	<0.5	U	<0.5	U	<0.5	UJ	<0.5	U	<0.5	U	<0.5	UJ	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U
TRICHLOROETHENE	µg/L	5	10.2		7.4		8.4	J	9.4		12		11	J	11		11		14		<0.5	U	<0.5	U	<0.5	U
VINYL CHLORIDE	µg/L	2	0.303	J	0.303	J	<0.5	UJ	1.3		<0.5	U	0.75	J	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U

Notes:
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Table 4
Historical Monitoring Well COC Concentrations
LHAAP-58, Longhorn Army Ammunition Plan, Karnack, Texas
Year 7 RA(O) Report

Sample Identification: / Sample Date:	Units	MCL	35AWW15-052814 5/28/2014	35AWW15-102114 10/21/2014	35AWW15-012315 1/23/2015	35AWW15-041015 4/10/2015	35AWW15-071015 7/10/2015	35AWW15-100615 10/6/2015	35AWW15-041416 4/14/2016	35AWW15-100516 10/5/2016	35AWW15-111617 11/16/2017	35AWW15-071818 07/18/2018	35AWW15-071818_a 07/18/2018	35AWW15_121218 12/12/2018
1,1-DICHLOROETHENE	µg/L	7	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<0.5 U	<0.5 UJ	<0.5 UJ	<0.5 U
CIS-1,2-DICHLOROETHENE	µg/L	70	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 UJ	<0.5 UJ	<0.5 U
TETRACHLOROETHENE	µg/L	5	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 UJ	<0.5 UJ	<0.5 U
TRANS-1,2-DICHLOROETHENE	µg/L	100	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 UJ	<0.5 UJ	<0.5 U
TRICHLOROETHENE	µg/L	5	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 UJ	<0.5 UJ	<0.5 U
VINYL CHLORIDE	µg/L	2	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 UJ	<0.5 UJ	<0.5 U

Notes:
Blue Highlighting Indicates Analyte Detected Above MCl
µg/L - micrograms per liter
MCL - Maximum Contaminant Level
NA - not analyzed
J - Estimated value; analyte concentration was less than the limit of quantification
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Year 7 RA(O) Report

Sample Identification: / Sample Date:	Units	MCL	35AWW15_060719 6/7/2019	35AWW15_122019 12/20/2019	35AWW15_062520 6/25/2020	35AWW15_120120 12/1/20	35AWW15_060121 6/01/21	35AWW16-102213 10/22/2013	35AWW16-013114 1/31/2014	35AWW16-052814 5/28/2014	35AWW16-103014 10/30/2014	35AWW16-012715 1/27/2015	35AWW16FD-012715 1/27/2015	35AWW16-040715 4/7/2015
1,1-DICHLOROETHENE	µg/L	7	<0.5 U	<0.5 UJ	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U
CIS-1,2-DICHLOROETHENE	µg/L	70	<0.5 U	<0.5 UJ	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
TETRACHLOROETHENE	µg/L	5	<0.5 U	<0.5 UJ	<1.0 U	<0.5 U	<1.0 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
TRANS-1,2-DICHLOROETHENE	µg/L	100	<0.5 U	<0.5 UJ	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
TRICHLOROETHENE	µg/L	5	<0.5 U	<0.5 UJ	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
VINYL CHLORIDE	µg/L	2	<0.5 U	<0.5 UJ	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U

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Year 7 RA(O) Report

Sample Identification: / Sample Date:	Units	MCL	35AWW16-070915 7/9/2015	35AWW16FD-070915 7/9/2015	35AWW16-100615 10/6/2015	35AWW16-041216 4/12/2016	35AWW16-100416 10/4/2016	35AWW16FD-100416 10/4/2016	35AWW16-111317 11/13/2017	35AWW16-111317_a 11/13/2017	35AWW16-062918 06/29/2018	35AWW16-062918_a 06/29/2018	35AWW16_121218 12/12/2018	35AWW16_061019 6/10/2019
1,1-DICHLOROETHENE	µg/L	7	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	1.4
CIS-1,2-DICHLOROETHENE	µg/L	70	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
TETRACHLOROETHENE	µg/L	5	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
TRANS-1,2-DICHLOROETHENE	µg/L	100	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
TRICHLOROETHENE	µg/L	5	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
VINYL CHLORIDE	µg/L	2	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U

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Sample Identification: Sample Date:	Units	MCL	35AWW16_121919 12/19/2019		35AWW16_062520 6/25/2020		35AWW16_120120 12/1/20		35AWW16_060121 6/01/21		35AWW17-101813 10/18/2013		35AWW17-020114 2/1/2014		35AWW17-052914 5/29/2014		35AWW17-103114 10/31/2014		35AWW17-012815 1/28/2015		35AWW17-041015 4/10/2015		35AWW17-071015 7/10/2015		35AWW17-100515 10/2/2015	
1,1-DICHLOROETHENE	µg/L	7	<0.5	UJ	<0.5	U	<0.5	U	<0.5	U	<1	U	<1	U	<1	U	<1	U	<1	U	<1	U	<1	UJ	<1	U
CIS-1,2-DICHLOROETHENE	µg/L	70	<0.5	UJ	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	UJ	<0.5	U
TETRACHLOROETHENE	µg/L	5	<0.5	UJ	<1.0	U	<0.5	U	<1.0	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	UJ	<0.5	U
TRANS-1,2-DICHLOROETHENE	µg/L	100	<0.5	UJ	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	UJ	<0.5	U
TRICHLOROETHENE	µg/L	5	<0.5	UJ	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	UJ	<0.5	U
VINYL CHLORIDE	µg/L	2	<0.5	UJ	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	UJ	<0.5	U

Notes:
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µg/L - micrograms per liter
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Sample Identification: / Sample Date:	Units	MCL	35AWW17-041116 4/11/2016	35AWW17-100316 10/3/2016	35AWW17-111317 11/13/2017	35AWW17-062918 06/29/2018	35AWW17_121718 12/17/2018	35AWW17_061019 6/10/2019	35AWW17_121819 12/18/2019	35AWW17_062920 6/29/2020	35AWW17_120120 12/1/20	35AWW17_060321 6/03/21	35AWW18-101813 10/18/2013	35AWW18-020114 2/1/2014
1,1-DICHLOROETHENE	µg/L	7	<1 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U
CIS-1,2-DICHLOROETHENE	µg/L	70	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
TETRACHLOROETHENE	µg/L	5	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1.0 U	<0.5 U	<1.0 U	<0.5 U	<0.5 U
TRANS-1,2-DICHLOROETHENE	µg/L	100	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
TRICHLOROETHENE	µg/L	5	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
VINYL CHLORIDE	µg/L	2	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U

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1,1-DICHLOROETHENE	µg/L	7	<1	U	0.792	J	0.726	J	0.78	J	<1	UJ	<1	U	2.13		2.09		0.97	J	<0.5	U	1.2		2	
CIS-1,2-DICHLOROETHENE	µg/L	70	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	UJ	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U
TETRACHLOROETHENE	µg/L	5	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	UJ	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U
TRANS-1,2-DICHLOROETHENE	µg/L	100	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	UJ	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U
TRICHLOROETHENE	µg/L	5	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	UJ	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U
VINYL CHLORIDE	µg/L	2	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	UJ	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U

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Sample Identification: / Sample Date:	Units	MCL	35AWW18_121718_a 12/17/2018		35AWW18_060419 6/4/2019		35AWW18_121819 12/18/2019		35AWW18_062520 6/25/2020		35AWW18_120120 12/1/20		35AWW18_120120_a 12/1/20		35AWW18_060121 6/01/21		35AWW19-102213 10/22/2013		35AWW19-013114 1/31/2014		35AWW19-052814 5/28/2014		35AWW19-103014 10/30/2014		35AWW19-012115 1/21/2015	
1,1-DICHLOROETHENE	µg/L	7	2.3		3.5		4.1		18		22		22		20		6.45		9.31		9.98		10.9		17.4	
CIS-1,2-DICHLOROETHENE	µg/L	70	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U
TETRACHLOROETHENE	µg/L	5	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<1.0	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U
TRANS-1,2-DICHLOROETHENE	µg/L	100	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U
TRICHLOROETHENE	µg/L	5	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	0.379	J	0.619	J	0.596	J	0.81	J	0.941	J
VINYL CHLORIDE	µg/L	2	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U

Notes:
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1,1-DICHLOROETHENE	µg/L	7	17.5	13.4	11.7	14.7	13.5	12.9	7.7	13 J	8.8	7.5	3.6	2.6
CIS-1,2-DICHLOROETHENE	µg/L	70	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 UJ	<0.5 U	<0.5 U	<0.5 U	<0.5 U
TETRACHLOROETHENE	µg/L	5	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 UJ	<0.5 U	<0.5 U	<0.5 U	<0.5 U
TRANS-1,2-DICHLOROETHENE	µg/L	100	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 UJ	<0.5 U	<0.5 U	<0.5 U	<0.5 U
TRICHLOROETHENE	µg/L	5	1.13	0.807 J	0.751 J	0.939 J	0.899 J	0.754 J	<0.5 U	<0.5 UJ	0.59 J	0.59 J	<0.5 U	<0.5 U
VINYL CHLORIDE	µg/L	2	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 UJ	<0.5 U	<0.5 U	<0.5 U	<0.5 U

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Year 7 RA(O) Report

Sample Identification: / Sample Date:	Units	MCL	35AWW19_091 119 9/11/2019		35AWW19_121 819 12/18/2019		35AWW19_032 420 03/24/2020		35AWW19_062 420 6/24/2020		35AWW19_120 320 12/3/20		35AWW19_060 321 6/03/21		35AWW20-101513 10/15/2013		35AWW20-020314 2/3/2014		35AWW20-052114 5/21/2014		35AWW20-102914 10/29/2014		35AWW20-012715 1/27/2015		35AWW20-041515 4/15/2015	
1,1-DICHLOROETHENE	µg/L	7	5.3		4.5		4.4		4.6		3.2		2.9		3,230		2,950		5,060		4,910		5,660		4,640	
CIS-1,2-DICHLOROETHENE	µg/L	70	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	110		87.7		110		119		123		120	
TETRACHLOROETHENE	µg/L	5	<0.5	U	<0.5	U	<0.5	U	<1.0	U	<0.5	U	<1.0	U	1.65		1.53		<10	U	<10	U	<10	U	<12.5	U
TRANS-1,2-DICHLOROETHENE	µg/L	100	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	3.77		3.52		<10	U	<10	U	<10	U	<12.5	U
TRICHLOROETHENE	µg/L	5	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	513		479		695		843		820		718	
VINYL CHLORIDE	µg/L	2	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	105		62.4		65.7		102		122		90.6	

Notes:
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U - Analyte was not detected.
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Table 4
Historical Monitoring Well COC Concentrations
LHAAP-58, Longhorn Army Ammunition Plan, Karnack, Texas
Year 7 RA(O) Report

Sample Identification: / Sample Date:	Units	MCL	35AWW20-070815 7/8/2015		35AWW20-100815 10/8/2015		35AWW20-041316 4/13/2016		35AWW20-100416 10/4/2016		35AWW20-111417 11/14/2017		35AWW20-111417_a 11/14/2017		35AWW20-071618 07/16/2018		35AWW20_092618 9/26/2018		35AWW20_092618-a 9/26/2018		35AWW20_121018 12/10/2018		35AWW20_031919 03/19/2019		35AWW20_060419 6/4/2019	
1,1-DICHLOROETHENE	µg/L	7	4,780		3,630		5,460		3,440		1,900		2,000		1,400		1,100		970		2,700		1,500		1,800	
CIS-1,2-DICHLOROETHENE	µg/L	70	118		105		126		115		53		50		69		45		40		120		49	J	79	
TETRACHLOROETHENE	µg/L	5	<12.5	U	<12.5	U	<12.5	U	<10	U	0.80	J	0.77	J	<0.5	U	0.81	J	0.71	J	1.3		<0.5	UJ	<2.5	U
TRANS-1,2-DICHLOROETHENE	µg/L	100	<12.5	U	<12.5	U	5.16	J	<10	U	6.7		5.6		2.9		1.8		1.7		6.1		4.9	J	13	
TRICHLOROETHENE	µg/L	5	636		582		707		594		320		320		270		170		140		570		180		230	
VINYL CHLORIDE	µg/L	2	151		126		216		166		78		75		71		<0.5	U	<0.5	U	110		54	J	140	

Notes:
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Table 4
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LHAAP-58, Longhorn Army Ammunition Plan, Karnack, Texas
Year 7 RA(O) Report

Sample Identification: / Sample Date:	Units	MCL	35AWW20_091 119 9/11/2019		35AWW20_121 919 12/19/2019		35AWW20_032 420 03/24/2020		35AWW20_062 420 6/24/2020		35AWW20_120 320 12/3/20		35AWW20_060 321 6/03/21		35AWW21-101613 10/16/2013		35AWW21-020414 2/4/2014		35AWW21-052214 5/22/2014		35AWW21-102114 10/21/2014		35AWW21-012315 1/23/2015		35AWW21-040815 4/8/2015	
1,1-DICHLOROETHENE	µg/L	7	3,900		970	J	1,300		1,100		950		1,600		<1	U	<1	U	<1	U	<1	U	<1	U	<1	U
CIS-1,2-DICHLOROETHENE	µg/L	70	110		70	J	71		63		63		87		<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U
TETRACHLOROETHENE	µg/L	5	<0.5	U	<5.0	UJ	<2.5	U	0.61	J	<0.5	U	<10	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U
TRANS-1,2-DICHLOROETHENE	µg/L	100	14		9.1	J	6.6		7.2		6.7		<5.0	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U
TRICHLOROETHENE	µg/L	5	350		99	J	120		94		91		190		<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U
VINYL CHLORIDE	µg/L	2	790		2,800	J	1,500		2,000		1,800		780		<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U

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Table 4
Historical Monitoring Well COC Concentrations
LHAAP-58, Longhorn Army Ammunition Plan, Karnack, Texas
Year 7 RA(O) Report

Sample Identification: / Sample Date:	Units	MCL	35AWW21-070915 7/9/2015	35AWW21-100615 10/6/2015	35AWW21-041316 4/13/2016	35AWW21FD-041316 4/13/2016	35AWW21-100416 10/4/2016	35AWW21FD-100416 10/4/2016	35AWW21-111317 11/13/2017	35AWW21-062918 06/29/2018	34AWW21_121318 12/13/2018	35AWW21_060419 6/4/2019	34AWW21_122019 12/20/2019	34AWW21_122019-a 12/20/2019
1,1-DICHLOROETHENE	µg/L	7	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
CIS-1,2-DICHLOROETHENE	µg/L	70	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
TETRACHLOROETHENE	µg/L	5	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
TRANS-1,2-DICHLOROETHENE	µg/L	100	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
TRICHLOROETHENE	µg/L	5	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
VINYL CHLORIDE	µg/L	2	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U

Notes:
Blue Highlighting Indicates Analyte Detected Above MCl
µg/L - micrograms per liter
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Historical Monitoring Well COC Concentrations
LHAAP-58, Longhorn Army Ammunition Plan, Karnack, Texas
Year 7 RA(O) Report

Sample Identification: / Sample Date:	Units	MCL	34AWW21_062920 6/29/2020	34AWW21_062920_a 6/29/2020	34AWW21_120720 12/7/20	34AWW21_060121 6/01/21	35AWW22-102213 10/22/2013	35AWW22-013114 1/31/2014	35AWW22-052914 5/29/2014	35AWW22-103014 10/30/2014	35AWW22FD-103014 10/30/2014	35AWW22-012115 1/21/2015	35AWW22FD-012115 1/21/2015	35AWW22-040715 4/7/2015
1,1-DICHLOROETHENE	µg/L	7	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U
CIS-1,2-DICHLOROETHENE	µg/L	70	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
TETRACHLOROETHENE	µg/L	5	<1.0 U	<1.0 U	<0.5 U	<1.0 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
TRANS-1,2-DICHLOROETHENE	µg/L	100	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
TRICHLOROETHENE	µg/L	5	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
VINYL CHLORIDE	µg/L	2	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U

Notes:
Blue Highlighting Indicates Analyte Detected Above MCl
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LHAAP-58, Longhorn Army Ammunition Plan, Karnack, Texas
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Sample Identification: / Sample Date:	Units	MCL	35AWW22-070915 7/9/2015	35AWW22-100515 10/5/2015	35AWW22-041316 4/13/2016	35AWW22-100616 10/6/2016	35AWW22-111717 11/17/2017	35AWW22-071818 07/18/2018	35AWW22_121418 12/14/2018	35AWW22_061019 6/10/2019	35AWW22_121819 12/18/2019	35AWW22_062420 6/24/2020	35AWW22_120720 12/7/20	35AWW22_060221 6/02/21
1,1-DICHLOROETHENE	µg/L	7	<1 U	<1 U	<1 U	<1 U	<0.5 U	<0.5 UJ	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
CIS-1,2-DICHLOROETHENE	µg/L	70	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 UJ	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
TETRACHLOROETHENE	µg/L	5	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 UJ	<0.5 U	<0.5 U	<0.5 U	<1.0 U	<0.5 U	<1.0 U
TRANS-1,2-DICHLOROETHENE	µg/L	100	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 UJ	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
TRICHLOROETHENE	µg/L	5	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 UJ	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
VINYL CHLORIDE	µg/L	2	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 UJ	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U

Notes:
Blue Highlighting Indicates Analyte Detected Above MCl
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LHAAP-58, Longhorn Army Ammunition Plan, Karnack, Texas
Year 7 RA(O) Report

Sample Identification: / Sample Date:	Units	MCL	35AWW23-071718 07/17/2018	35AWW23_121018 12/10/2018	35AWW23_060319 6/3/2019	35AWW23_091119 9/11/2019	35AWW23_121819 12/18/2019	35AWW23_032420 03/24/2020	35AWW23_062420 6/24/2020	35AWW23_120320 12/3/20	35AWW23_060321 6/03/21	35AWW24-071718 07/17/2018	35AWW24_092718 9/27/2018	35AWW24_121018 12/10/2018
1,1-DICHLOROETHENE	µg/L	7	2.1	2.5	<0.5 U	0.7 J	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
CIS-1,2-DICHLOROETHENE	µg/L	70	12	20	4.3	7.8	7.6	6.5	5.0	2.7	1.0	<0.5 U	<0.5 U	<0.5 U
TETRACHLOROETHENE	µg/L	5	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<1.0 U	<0.5 U	<0.5 U	<0.5 U
TRANS-1,2-DICHLOROETHENE	µg/L	100	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
TRICHLOROETHENE	µg/L	5	2.6	5.3	1.8	3.8	2.7	1.3	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
VINYL CHLORIDE	µg/L	2	<0.5 U	<0.5 U	<0.5 U	<0.5 U	1.1	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U

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LHAAP-58, Longhorn Army Ammunition Plan, Karnack, Texas
Year 7 RA(O) Report

Sample Identification: / Sample Date:	Units	MCL	35AWW24_031919 03/19/2019	35AWW24_060319 6/3/2019	35AWW24_121919 12/19/2019	35AWW24_062520 6/25/2020	35AWW24_062520-a 6/25/2020	35AWW24_120320 12/3/20	35AWW24_060121 6/01/21	35AWW24_060121-a 6/01/21	LHSMW04-941201 12/1/1994	LHSMW04-960812 8/12/1996	LHSMW04-980513 5/13/1998	LHSMW04-040909 9/9/2004
1,1-DICHLOROETHENE	µg/L	7	0.81 J	<0.5 U	<0.5 UJ	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<5 U	<0.2 U	<1 U	<5 U
CIS-1,2-DICHLOROETHENE	µg/L	70	<0.5 U	<0.5 U	<0.5 UJ	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.2 U	<1 U	<5 U
TETRACHLOROETHENE	µg/L	5	<0.5 U	<0.5 U	<0.5 UJ	<1.0 U	<1.0 U	<0.5 U	<1.0 U	<1.0 U	<5 U	<0.25 U	<1 U	<5 U
TRANS-1,2-DICHLOROETHENE	µg/L	100	<0.5 U	<0.5 U	<0.5 UJ	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.29 U	<1 U	<5 U
TRICHLOROETHENE	µg/L	5	<0.5 U	<0.5 U	<0.5 UJ	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<5 U	<0.25 U	<1 U	<5 U
VINYL CHLORIDE	µg/L	2	<0.5 U	<0.5 U	<0.5 UJ	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	NA	<0.24 U	<1 U	<5 U

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LHAAP-58, Longhorn Army Ammunition Plan, Karnack, Texas
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Sample Identification: / Sample Date:	Units	MCL	LHSMW04-FEB2007 2/20/2007	LHSMW04-013008 1/30/2008	LHSMW04-112508 11/25/2008	LHSMW04-032916 3/29/2016	LHSMW04-041316 4/13/2016	LHSMW05-941201 12/1/1994	LHSMW05-960131 1/31/1996	LHSMW05-960812 8/12/1996	LHSMW05-980513 5/13/1998	LHSMW05-040909 9/9/2004	LHSMW06-941201 12/1/1994	LHSMW06-960813 8/13/1996
1,1-DICHLOROETHENE	µg/L	7	<2 U	<1 U	<1 U	<1 U	<2.5 U	<5 U	<1 U	<0.2 U	<40 U	<5 U	<5 U	2
CIS-1,2-DICHLOROETHENE	µg/L	70	<2 U	<1 U	0.292 J	0.666 J	0.851 J	NA	<1 U	0.21	<40 U	<5 U	NA	0.98
TETRACHLOROETHENE	µg/L	5	6.4	8.74	25.7	419	397	870	4,884	2,700	4,900	5,100 J	<5 U	0.27
TRANS-1,2-DICHLOROETHENE	µg/L	100	<2 U	<1 U	<1 U	<0.5 U	<1.25 U	NA	<1 U	<0.29 U	<40 U	<5 U	NA	<0.29 U
TRICHLOROETHENE	µg/L	5	4.6	5.74	11.3	106	86.1	49	99	39.7	160	230 J	<5 U	0.43
VINYL CHLORIDE	µg/L	2	<2 U	<1 U	<1 U	<0.5 U	<1.25 U	NA	<1 U	<0.24 U	<40 U	<5 U	NA	0.62

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LHAAP-58, Longhorn Army Ammunition Plan, Karnack, Texas
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Sample Identification: / Sample Date:	Units	MCL	LHSMW06-980513 5/13/1998	LHSMW06-040908 9/8/2004	LHSMW06-FEB2007 2/21/2007	LHSMW06-111908 11/19/2008	LHSMW06-101713 10/17/2013	LHSMW06-013114 1/31/2014	LHSMW06-052814 5/28/2014	LHSMW06-103014 10/30/2014	LHSMW06-012115 1/21/2015	LHSMW06-040715 4/7/2015	LHSMW06-070915 7/9/2015	LHSMW06-100215 10/2/2015
1,1-DICHLOROETHENE	µg/L	7	1.3	<5 U	<2 U	<1 U	1.23 J	0.884 J	1.68 J	4.03	3.28	5.95	8.2	12.1
CIS-1,2-DICHLOROETHENE	µg/L	70	1.4	<5 U	5.1	2.26	4.01	1.85	2.59	5.2	3.25	5.52	7.24	10.4
TETRACHLOROETHENE	µg/L	5	0.69	2 J	<2 U	<1 U	0.663 J	<0.5 U	0.255 J	0.381 J	0.255 J	0.454 J	0.443 J	0.518 J
TRANS-1,2-DICHLOROETHENE	µg/L	100	<1 U	<5 U	<2 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U
TRICHLOROETHENE	µg/L	5	0.53	<5 U	0.77 J	0.486 J	1.87	0.751 J	1.41	2.77	1.75	3.02	3.23	5.66
VINYL CHLORIDE	µg/L	2	<1 U	<5 U	<2 U	<1 U	0.627 J	0.5 J	0.597 J	1.15	0.924 J	0.967 J	1.36	2.1

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LHAAP-58, Longhorn Army Ammunition Plan, Karnack, Texas
Year 7 RA(O) Report

Sample Identification: / Sample Date:	Units	MCL	LHSMW06-041316 4/13/2016		LHSMW06-100616 10/6/2016		LHSMW06-111717 11/17/2017		LHSMW06-070218 07/02/2018		LHSMW06_121318 12/13/2018		LHSMW06_121318_a 12/13/2018		LHSMW06_060719 6/7/2019		LHSMW06_122019 12/20/2019		LHSMW06_122019_a 12/20/2019		LHSMW06_062520 6/25/2020		LHSMW06_120320 12/3/20		LHSMW06_060321 6/03/21	
1,1-DICHLOROETHENE	µg/L	7	13.7		19.2		12.0		2.3		19.0		20.0		4.3		19	J	20	J	22		14		11	
CIS-1,2-DICHLOROETHENE	µg/L	70	11.9		19		14		12		55		55		29		68	J	68	J	65		62		71	
TETRACHLOROETHENE	µg/L	5	0.563	J	0.9	J	<0.5	U	1.6		1.5		1.4		<0.5	U	1.9	J	1.9	J	2.1		1.6		2.9	
TRANS-1,2-DICHLOROETHENE	µg/L	100	<0.5	U	0.391	J	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	1.4	J	1.5	J	1.4		1.3		1.2	
TRICHLOROETHENE	µg/L	5	6.5		9.06		5.8		2.8		16.0		16.0		7.5		17	J	17	J	16		14		19	
VINYL CHLORIDE	µg/L	2	2.38		2.94		2.2		<0.5	U	5.0		5.0		1.2		5.7	J	5.6	J	5.5		4.8		3.2	

Notes:
Blue Highlighting Indicates Analyte Detected Above MCl
µg/L - micrograms per liter
MCL - Maximum Contaminant Level
NA - not analyzed
J - Estimated value; analyte concentration was less than the limit of quantification
U - Analyte was not detected.
UJ - The analysis was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample. 'UJ' not detects are not definite; the analyte may be present.

Table 4
Historical Monitoring Well COC Concentrations
LHAAP-58, Longhorn Army Ammunition Plan, Karnack, Texas
Year 7 RA(O) Report

Sample Identification: / Sample Date:	Units	MCL	LHSMW07-941201 12/1/1994	LHSMW07-941201FD 12/1/1994	LHSMW07-960131 1/31/1996	LHSMW07-960812 8/12/1996	LHSMW07-980513 5/13/1998	LHSMW07-040908 9/8/2004	LHSMW07-FEB2007 2/21/2007	LHSMW07-111908 11/21/2008	LHSMW07-110509 5/9/2011	LHSMW07-101513 10/15/2013	LHSMW07-013014 1/30/2014	LHSMW07-052214 5/22/2014	LHSMW07-102914 10/29/2014	LHSMW07-012815 1/28/2015
1,1-DICHLOROETHENE	µg/L	7	750	660	1,341	311	950	590 J	394	576	669	396	334	558 J	1,140	1,300
CIS-1,2-DICHLOROETHENE	µg/L	70	NA	NA	NA	2.5	11	6	3.6	7.96	10.1	6.1	4.66	7.17	21	19.3
TETRACHLOROETHENE	µg/L	5	<5 U	<5 U	7	2.7	<1 U	<5 U	<2 U	<1 U	0.253 J	<0.5 U	<1 U	<0.5 U	<1 U	<2.5 U
TRANS-1,2-DICHLOROETHENE	µg/L	100	NA	NA	NA	<0.29 U	0.73	<5 U	<2 U	0.421 J	0.384 J	0.282 J	<1 U	0.296 J	1.06 J	<2.5 U
TRICHLOROETHENE	µg/L	5	16	19	24	5.9	25	24	15.8	25	41.3	23.9	17.6	23.1	78.1	64.3
VINYL CHLORIDE	µg/L	2	NA	NA	10	1.1	7.2	9	3	14.4	9.47	15.9	5.43	7.98	35.4	28.8

Notes:
Blue Highlighting Indicates Analyte Detected Above MCl
µg/L - micrograms per liter
MCL - Maximum Contaminant Level
NA - not analyzed
J - Estimated value; analyte concentration was less than the limit of quantification
U - Analyte was not detected.
UJ - The analysis was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample. 'UJ' not detects are not definite; the analyte may be present.

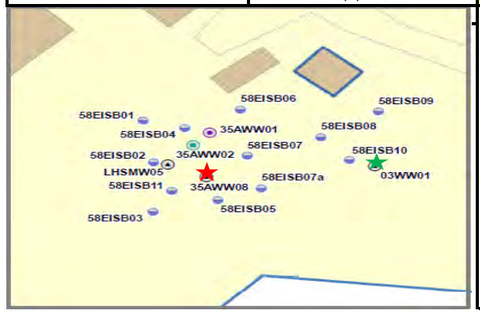
Table 4
Historical Monitoring Well COC Concentrations
LHAAP-58, Longhorn Army Ammunition Plan, Karnack, Texas
Year 7 RA(O) Report

Sample Identification: / Sample Date:	Units	MCL	LHSMW07-041515 4/15/2015	LHSMW07-070715 7/7/2015	LHSMW07-100815 10/8/2015	LHSMW07-041416 4/14/2016	LHSMW07-100416 10/4/2016	LHSMW07-111417 11/14/2017	LHSMW07-071718 07/17/2018	LHSMW07_092618 9/26/2018	LHSMW07_121018 12/10/2018	LHSMW07_031919 03/19/2019	LHSMW07_060319 6/3/2019	LHSMW07_091119 9/11/2019	LHSMW07_121919 12/19/2019	LHSMW07_032420 03/24/2020	LHSMW07_062420 6/24/2020	LHSMW07_120320 12/3/20	LHSMW07_060221 6/02/21
1,1-DICHLOROETHENE	µg/L	7	1,660	2,100	1,210	1,250	701	600	56	3.1	<0.5 U	<0.5 U	16	46	46 J	94	130	64	12
CIS-1,2-DICHLOROETHENE	µg/L	70	31.4	32.4	22.5	19.6	22.1	11	5.0	1.1	<0.5 U	<0.5 U	0.7 J	1.1	1.2 J	1.0	1.0	<0.5 U	<0.5 U
TETRACHLOROETHENE	µg/L	5	<5 U	<2.5 U	<2.5 U	0.397 J	<2.5 U	<0.5 U	<0.5 U	0.397 J	<2.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 UJ	<0.5 U	<0.5 U	<0.5 U	<1.0 U
TRANS-1,2-DICHLOROETHENE	µg/L	100	<5 U	1.29 J	<2.5 U	0.681 J	<2.5 U	<0.5 U	<0.5 U	0.681 J	<2.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 UJ	<0.5 U	<0.5 U	<0.5 U	<0.5 U
TRICHLOROETHENE	µg/L	5	82.1	118	84.9	67.5	71.6	39.0	12	2.4	<0.5 U	1.1	1.8	3.1	3.1 J	2.8	2.5	2.1	0.91 J
VINYL CHLORIDE	µg/L	2	34.1	69.4 J	37.1	10.8	21.8	15.0	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	49	42 J	46	44	42	<0.5 U

Notes:
Blue Highlighting Indicates Analyte Detected Above MCl
µg/L - micrograms per liter
MCL - Maximum Contaminant Level
NA - not analyzed
J - Estimated value; analyte concentration was less than the limit of quantification
U - Analyte was not detected.
UJ - The analysis was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample. 'UJ' not detects are not definite; the analyte may be present.

Table 5
Enhanced In-situ Bioremediation Performance Data Summary - Eastern Plume
LHAAP-58, Longhorn Army Ammunition Plant, Karnack, Texas
Year 7 RA(O) Report

Monitoring Location	Sample Date	Field Parameters					Electron Donor	cVOCs				Dissolved Gases				Wet Chemistry						Dechlorinating Bacteria	
		pH	DO	ORP	Spec Cond	Turb	TOC	PCE	TCE	cDCE	VC	Ethane	Methane	Ethene	CO_2	Fe^{2+}	NO_3	NO_2	SO_4	Cl^-	Alk	DHC	DHBt
		SU	mg/L	mV	ms/cm	NTU	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	cells/mL	cells/mL
★ 35AWW08	8/20/2013	6.05	NR	NR	8.23	26.9	16.5	1,640	544	9.35 J	< 5 U	< 2 U	10.1	< 2 U	143,000	0.04	< 4 U	< 4 U	1,480	2,510	174	< 0.9 U	< 5.3 U
	10/10/2013	6.7	NR	NR	47.7	4.1	66,400	603 J	149 J	<5	< 5 U	< 2 U	5.38	< 2 U	NA	52.4	12.3 J	<20	703	905	35,600	3.6	1,300
	1/29/2014	6.68	NR	NR	23.4	79.8	43,500	599	895	55.9	< 5 U	< 2 U	345	< 2 U	428,000	144	< 10 U	< 10 U	285	2,190	27,700	< 0.8 U	12,900
	5/20/2014	5.57	NR	NR	18.2	90.4	16,900	204	953	47.2	< 5 U	< 2 U	NA	< 2 U	NA	< 800 U	< 10 U	< 10 U	262	1,590	18,300	4,880	574,000
	10/27/2014	6.86	NR	NR	19.5	213	13,900	112	653	38.6 J	< 25 U	< 2 U	4,420	< 2 U	505,000	478	< 20 U	< 20 U	< 100 U	2,020	11,800 J	70.4	3,050,000 J
	1/21/2015	6.82	NR	NR	18.1	225	6,030	119	491	27.2 J	< 25 U	< 40 U	2,540	< 40 U	152,000 J	10.9 J	< 3 U	< 3 U	< 15 U	1,900	20,400	NA	NA
	4/15/2015	8.06	NR	NR	16.4	448	8,330	110	607	30.7 J	< 25 U	< 20 U	3,380	< 20 U	249,000	< 80 U	< 2 U	< 2 U	< 10 U	2,250	18,800 J	NA	NA
	7/8/2015	8.07	NR	NR	13.9	325	2,540	110	746	73.5 J	< 50 U	< 20 U	5,600	< 20 U	370,000	123	< 2 U	< 2 U	< 10 U	2,250	10,100 J	NA	NA
	10/8/2015	7.22	NR	NR	11.3	300	2,240	79	581	79.6	< 12.5 U	< 20 U	5,510	< 20 U	374,000	21.1	< 5 U	< 5 U	< 25 U	2,130 J	20,600	448	72,900
	4/13/2016	6.86	NR	-162	13.9	74.6	NA	80.1	234	60.9	14.2 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/4/2016	6.92	NR	NR	11.8	50.4	918	36.9	235	41.7	7.46 J	< 20 U	7,350	< 20 U	424,000	17.6	< 2 U	< 2 U	< 10 U	2,000	9,160 J	25,600,000	625,000
	11/15/2017	6.58	NR[3]	NR[3]	11.8	63.6	581	12	33	38	< 5 U	< 0.23 U	670	0.56 J	190,000	17.4 J	0.249	< 0.05 U	2.03	2,060	4,360	3,060,000	< 38.5 U
	7/18/2018	7.15	NR[3]	NR[3]	14.9	31.4	484 J	< 2.5 UJ	19 J	12 J	9.0 J	< 0.47 U	920	0.49 J	350,000	13.7 J	< 0.200 UJ	< 0.200 UJ	0.9	2460	3,050 J	1,410,000	47,000
	12/11/2018	7.28	NR[3]	NR[3]	10.9	82.5	392	< 0.5 U	12	8.9 J	< 0.5 U	< 0.47 U	< 1.0 U	< 0.55 U	290,000	21 J	0.147 J	< 0.100 U	4.76	2,240	3,420	1,200,000	173,000
	6/3/2019	8.67	NR[3]	NR[3]	9.93	86.9	306	4.8 J	13	< 2.5 U	< 2.5 U	< 0.47 U	3,000	4.1	260,000	2.03	0.219 J	NA	1.42 J	2,510	NA	3,790,000	139,000
	12/18/2019	6.65	0.04	-161	9.62	60.5	291	<5.0 U	<5.0 U	<5.0 U	<5.0 U	< 0.47 U	760	6.2	240,000	2.55	0.704	NA	<2.5 U	2,290	NA	NA	NA
	6/23/2020	6.77	0.07	-172	8.54	27.3	208	6.7	17	7.3	<2.5 U	< 0.47 U	1,500	12	230,000	NA	< 0.200 U	NA	15.5	2,510	NA	594,000	29,500
	12/1/2020	6.05	0.08	-25	9.67	63.2	165	< 5.0 U	< 5.0 U	18	6.1 J	< 0.47 U	320	5.6	830,000	NA	0.188 J	NA	63.0	2,480	NA	920,000	77,400
	6/2/2021	6.64	0.04	-144	9.29	3.2	119	< 25 U	53	30	24 J	< 0.47 U	1,600	33	430,000	NA	< 0.500 U	NA	148	2430	NA	122,000	4,500
★ 03WW01	8/20/2013	6.18	NR	NR	3.64	33	10.5	368	94.8	0.978 J	< 1 U	< 2 U	3.22	< 2 U	143,000	0.04	< 1 U	< 1 U	534	892	142	1.2	0.4 J
	10/10/2013	6.55	NR	NR	39.2	10	49,200	172	42.1	< 2.5 U	< 2.5 U	< 2 U	4.35	< 2 U	NA	35.4	< 20 U	< 20 U	487	398	39,700	< 2.1 U	15.7 J
	1/29/2014	6.58	NR	NR	20.2	256	30,200	172	58.4	< 5 U	< 5 U	< 2 U	5.09	< 2 U	337,000	110	< 10 U	< 10 U	457	906	27,500	< 0.9 U	639,000
	5/21/2014	5.52	NR	NR	16	152	29,100	154	71.2	3.3 J	< 5 U	< 2 U	479	< 2 U	564,000	0.0217	< 10 U	< 10 U	376	780	25,700	2,870	2,700,000
	10/28/2014	5.87	NR	NR	14.2	171	8,440	48.6 J	223	< 50 U	< 50 U	< 2 U	910	< 2 U	564,000 J	107	< 1 U	< 1 U	11	940	12,300 J	10.9	192,000
	1/21/2015	6.51	NR	NR	13.6	93.3	7,720	32.8 J	216	< 50 U	< 50 U	< 10 U	393	< 10 U	333,000	40.6	< 2 U	< 2 U	10.2	881	19,000 J	NA	NA
	4/15/2015	7.11	NR	NR	12.8	387	7,800	15.9 J	131	21.4 J	< 25 U	< 20 U	3,170	< 20 U	396,000	27.8 J	< 1 U	< 1 U	18	976	24,100	NA	NA
	7/8/2015	7.62	NR	NR	11.8	847	3,640	31.4 J	65.6 J	< 50 U	< 50 U	< 20 U	16,100	< 20 U	408,000	96.1	< 1 U	< 1 U	3.62 J	1,020	12,400 J	NA	NA
	10/8/2015	6.65	NR	NR	11.4	525	1,700	36.4 J	51.8 J	< 50 U	< 50 U	< 20 U	5,880	< 20 U	500,000	0.835	< 5 U	< 5 U	< 25 U	1,200	20,300	78	8,800
	4/13/2016	7.19	NR	-127	7.99	127	NA	6.49 J	<12.5U	117	< 12.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/4/2016	6.81	NR	NR	6.38	70	292	< 5 U	< 5 U	< 5 U	< 5 U	<20	5,950	< 20 U	657,000	8.02	< 1 U	< 1 U	< 5 U	762	5,500 J	9,460,000	53,300
	11/15/2017	7.25	NR[3]	NR[3]	6.59	135	191	< 2.5 U	< 2.5 U	< 2.5 U	< 2.5 U	< 0.23 U	620	1.2	310,000	18.9 J	< 0.05 U	< 0.05 U	40.8	1,020	3,310	35,300	< 20.8 U
	7/18/2018	6.8	NR[3]	NR[3]	6.23	9.5	118 J	< 0.5 UJ	< 0.5 UJ	5.3 J	4.8 J	< 0.47 U	590	0.89 J	490,000	40 J	< 0.200 UJ	< 0.200 UJ	161	977	2,290	7.5	6
	12/11/2018	6.24	NR[3]	NR[3]	2	54.1	42	15	5.7	22	7.6	< 0.47 U	1,800	2.3	390,000	27.5 J	< 0.100 U	< 0.100 U	42.8	336	862	10,100	599
	6/3/2019	8.1	NR[3]	NR[3]	4.95	14.8	66	3.2 J	2.9 J	41	11	< 0.47 U	2,900	1.6	520,000	0.84	0.196 J	NA	239	809	NA	6,040	292
	12/18/2019	6.41	0.05	-128	5.62	24.8	92	< 5 U	< 5 U	14	5.4 J	< 0.47 U	540	0.61 J	340,000	3.15	<0.500 U	NA	155	940	NA	22,240	2,480
	6/25/2020	6.44	0.04	-139	4.68	6.3	69.8	4.5 J	4.5 J	17	7.2	< 0.47 U	640	0.46	300,000	1.74	< 0.200 U	NA	231	965	NA	6,500	699
	12/1/2020	6.17	0.10	-50	4.89	10.7	99.9	< 5.0 U	24	7.2 J	< 5.0 U	< 0.47 U	1,700	1.1	460,000	NA	0.069 J	NA	82.7	870	NA	26,600	1,610
	6/2/2021	6.25	0.27	-99	5.24	158	103	11	3.0	11	1.6	< 0.47 U	420	< 0.55 U	830,000	NA	< 0.500 U	NA	180	945	NA	196	249



Slight decrease in pH noted during May 2014 sampling event, potentially related to excessive substrate fermentation and organic acid production, need to monitor closely. System has continued to self buffer over time.

-Initial spike in TOC indicates effective substrate distribution.
-Residual electron donor present to support desired biogeochemical reactions.
-Declining TOC concentrations over time indicative of substrate consumption.
-Electron donor nearly depleated.

PCE is degrading fully to VC. Residual degradation products of TCE, cDCE, and VC continue to degrade.

Reduced methane and ethene indicates slowing of reductive dechlorination due to limited substrate and eletron acceptors remaining.

Increasing sulfate concentration indicates that reductive dechlorination is starting to stall.

-Initial spike in dechlorinating bacteria counts suggest effective distribution of the bioaugmentation culture.
-Elevated dechlorinating bacteria counts in 2016 indicated rapid proliferation.
-Since 2016 generally declining bacteria counts

Notes:

1. Electron donor injections completed in Sept. 2013
2. Bioaugmentation performed in Nov. 2013
3. Data recorded but not used since bailer was used to collect the sample.

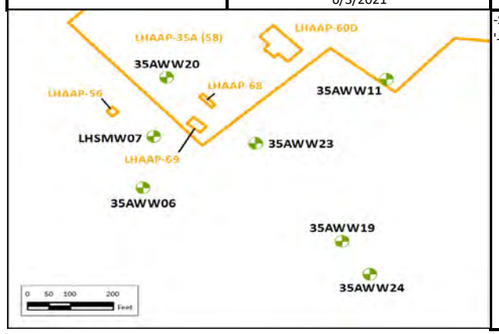
pH = potential of hydrogen
SU = standard units
DO = dissolved oxygen
mg/L = milligrams per liter
ORP = oxidation-reduction potential
mV = millivolts
Spec Cond = specific conductivity
ms/cm = millisiemens per centimeter
Turb = turbidity
NTU = nephelometric turbidity units
TOC = total organic carbon
cVOC = chlorinated volatile organic compounds
PCE = tetrachloroethene
TCE = trichloroethene
cDCE = cis-1,2-dichloroethene
VC = vinyl chloride
µg/L = micrograms per liter
CO_2 = carbon dioxide
Fe^{2+} = ferrous iron
NO_3 = nitrate
NO_2 = nitrite
SO_4 = sulfate
Cl^- = chloride
Alk = alkalinity
DHC = dehalococcoides
DHBt = dehalobacter spp.
cells/mL = cells per milliliter
NA = not analyzed
NR = not recorded
U - Undetected: The analyte was analyzed for, but not detected and reported to the limit of detection
U - The analyte was not detected; however, the result is estimated due to discrepancies in meeting certain analyte-specific quality control criteria.
J - Estimated: Between the method detection limit and reporting limit and/or due to discrepancies in meeting certain analyte-specific quality control criteria.

Table 6
Enhanced In-situ Bioremediation Performance Data Summary-Western Plume
LHAAP-58, Longhorn Army Ammunition Plant, Karnack, Texas
Year 7 RA(O) Report

Monitoring Location	Sample Date	Field Parameters					Electron Donor	cVOCs				Dissolved Gases				Wet Chemistry						Dechlorinating Bacteria		
		pH	DO	ORP	Spec Cond	Turb	TOC	PCE	TCE	cDCE	VC	Ethane	Methane	Ethene	CO_2	Fe^{2+}	NO_3	NO_2	SO_4	Cl^-	Alk	DHC	DHBt	BAV1 VC
		SU	mg/L	mV	ms/cm	NTU	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	cells/mL	cells/mL	cells/mL
LHSMW07	11/14/2017	5.94	0.09	159	11	40.9	6.81	< 0.5 U	39	11	15	< 0.23 U	18	< 0.22 U	220,000	0.4 J	< 0.0500 U	< 0.100 U	2,940	2,540	750	NA	NA	NA
	3/7/2018	6.1	0.65	180	12.1	5.1	6.67	< 1.0 U	34	11	5	< 0.47 U	3	< 0.55 U	350,000	0.07 J	< 0.0500 U	< 0.0500 U	2,700	2,420	757	11.8	< 4.8 U	NA
	7/17/2018	6.23	0	-389	14.1	13.2	321	< 0.5 U	12	5	< 0.5 U	< 0.47 U	1.4	< 0.55 U	540,000	2.58 J	< 0.200 U	< 0.200 U	1,090	2,270	1,990	17.2	6,570,000	NA
	9/26-27/2018	5.99	0	-222	9.24	20.3	14.2	< 0.50 U	2.4	1.1	< 0.50 U	< 0.47 U	27	4.0	760,000	0.93 J	< 0.200 U	< 0.200 U	1,120	2,180	2,060	11,600	3,540,000	0.8 J
	12/10/2018	6.7	0.02	-324	10.8	10.7	7.53	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	0.46 J	170	28	460,000	0.43 J	< 0.200 U	< 0.200 U	1,530	2,030	1,640	6,080	166,000	<2.1 U
	3/19/2019	6.57	0.17	-311	11	27.5	4.11	< 0.5 U	1.1	< 0.5 U	< 0.5 U	0.52 J	270	25	440,000	0.67	< 0.500 U	NA	2,390	1,980	NA	10,000	61,400	3
	6/3/2019	6.27	0.07	-96	10.4	17.5	4.13	< 0.5 U	1.8	0.70 J	< 0.5 U	0.20 J	78	3.9	660,000	0.25	< 0.500 U	NA	2,470	1,780	NA	7,580	< 9.5 U	<1.0 U
	9/11/2019	6.65	0.05	-48	9.19	5.8	3.42	< 0.5 U	3.1	1.1	49	0.20 J	240	6.1	340,000	1.72	< 0.100 U	< 0.100 U	2,530	1,820	NA	49.8	1,320	<0.5 U
	12/19/2019	6.43	0.09	-47	9.59	6.6	3.48 J	< 0.5 UJ	3.1 J	1.2 J	42 J	< 0.47 U	100	2.8	250,000	1.85	< 0.500 U	NA	2,560	1,770	NA	949	5,230	3
	3/24/2020	6.65	0.06	-87	10.1	0	3.29 J	< 0.5 U	2.8	1.0	46	< 0.47 U	77	2.3	250,000	1.76	< 0.500 U	NA	2,750	1,960	NA	2,280	10,300	5
	6/24/2020	6.37	0.08	-43	9.24	0	3.00	< 1.0 U	2.5	1.0	44	< 0.47 U	140	2.2	250,000	2.07	< 0.100 U	< 0.100 U	3,000	2,010	NA	1,090	42,100	1
	12/3/2020	6.53	0.14	10	9.87	0	2.33	< 0.5 U	2.1	< 0.5 U	42	0.42 J	810	5.9	260,000 J	NA	< 0.200 U	NA	2,650	1,650	NA	7,580	17,500	1
	6/2/2021	6.52	0.13	-144	9.60	0.8	7.94	< 1.0 U	0.91 J	< 0.5 U	< 0.5 U	0.31 J	680	19	300,000	NA	< 0.500 U	NA	2,720	1,760	NA	4,430	3,640	< 0.60 U
35AWW06	11/14/2017	5.86	0.06	197	5.87	8.7	2.29	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.23 U	0.32 J	< 0.22 U	200,000	0.09 J	2.12	< 0.0500 U	1,560	1,040	666	NA	NA	<1.8 U
	3/8/2018	5.67	0.26	136	5.91	4.4	2.32	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.47 U	< 1.0 U	< 0.55 U	500,000 J	0.12 J	< 0.0500 U	< 0.0500 U	1,480	1,000	666	1.5	291	<3.8 U
	7/2/2018	4.9	0	-35	5.86	96.7	4,200 J	< 0.5 UJ	< 0.5 UJ	< 0.5 UJ	< 0.5 UJ	< 0.47 U	< 1.0 U	0.58 J	780,000 J	14 J	< 0.200 UJ	< 0.200 UJ	811	904	386	< 1.8 U	52,900	<0.5 U
	9/26-27/2018	4.75	0	78	4.95	55.5	2860	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.47 UJ	3.0 J	< 0.55 UJ	860,000	27.8 J	< 0.200 U	< 0.200 U	508	910	775	3.60	705,000	<2.5 U
	12/11/2018	5.9	0.02	-177	5.2	36.8	685	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.47 U	890	0.44 J	790,000	88.1 J	< 0.200 U	< 0.200 U	13.4	858	1,210	2.50	144,000	<0.9 U
	3/19/2019	6.39	0.16	-234	5.09	31.8	407	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.47 U	3,100	< 0.55 U	720,000	0.44	< 0.500 U	NA	2.33 J	919	NA	12.3	21,200	<0.8 U
	6/4/2019	6.61	0.06	-99	5.15	46.1	331	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.47 U	1,500	< 0.55 U	750,000	0.65	0.180 J	NA	2.08 J	964	NA	26.8	159	0.8 J
	9/11/2019	6.99	0.06	-120	4.92	57.6	84.9	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.47 U	3,300	< 0.55 U	350,000	3.3	<0.100 U	<0.100 U	1.28 J	921	NA	28.6	<25.6 U	0.7 J
	12/19/2019	6.81	0.05	-152	4.97	86	13.8	<0.5 UJ	<0.5 UJ	<0.5 UJ	<0.5 UJ	< 0.47 U	1,500	< 0.55 U	270,000	3.3	<0.100 U	NA	0.845	935	NA	80.3	<10.2 U	30
	3/24/2020	6.83	0.07	-179	5.5	34	15.6	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.47 U	1,300	< 0.55 U	360,000	2.24	<0.100 U	NA	1.51	968	NA	9.6	1,220	5
	6/24/2020	6.65	0.08	-100	4.93	256	10.2	< 1.0 U	< 0.5 U	< 0.5 U	0.51 J	< 0.47 U	1,400	< 0.55 U	270,000	3.3	< 0.100 U	< 0.100 U	35.1	1,080	NA	3.5	1,990	<0.6 U
	12/1/2020	7.03	0.03	-55	5.33	277	8.67 J	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.47 U	3,300	< 0.55 U	270,000	NA	< 0.200 U	NA	45.6	937	NA	1,060	3,700	< 1.4 U
	6/3/2021	6.5	0.03	29	5.19	313	14.4	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.47 U	2,200	< 0.55 U	490,000	NA	< 0.200 U	NA	197	940	NA	15	4,170	1.50 J
35AWW11	11/14/2017	5.64	0.37	278	8.88	65.2	5.05	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.23 U	< 0.63 U	< 0.22 U	230,000	0.08 J	< 0.0500 U	< 0.0500 U	1,290	2,650	452	NA	NA	NA
	3/7/2018	5.94	0.59	211	9.49	90.8	5.28	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.47 U	16	0.38 J	360,000	0.10 J	< 0.0500 U	< 0.0500 U	1,260	2,530	446	0.6	< 5.0 U	NA
	7/16/2018	5.31	0	-56	8.77	15.5	1,650	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.47 U	0.80 J	< 0.55 U	450,000	27.6 J	< 0.100 U	< 0.100 U	652	2,440	649	4.60	910,000	0.7 J
	9/26-27/2018	5.64	0	-194	8.4	116	1,120	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	0.63	1,300	2.1	320,000	36.5 J	< 0.200 U	< 0.200 U	285	2,110	1,190	2.10	394,000	<0.7 U
	12/11/2018	6.02	0.05	-247	9.31	14.2	701	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.47 U	5.5	< 0.55 U	820,000	20.6 J	< 0.200 U	< 0.200 U	127	2,120	1,430	10.6	220,000	<0.5 U
	3/19/2019	5.92	0.11	-142	9	36.2	485	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.47 U	450	< 0.55 U	940,000	0.43	< 0.500 U	NA	172	2,150	NA	231	818,000	<0.9 U
	6/3/2019	5.7	0.09	-136	7.81	54.6	94.6	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.47 U	590	< 0.55 U	750,000	1.33	< 0.500 U	NA	210	1,920	NA	2,100	2,570,000	<0.5 U
	9/11/2019	6.23	0.07	-100	7.15	39.6	28 J	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.47 U	1,300	< 0.55 U	690,000	2.05	< 0.100 U	< 0.100 U	259	1,990	NA	1,240	115,000	<0.9 U
	12/18/2019	6.28	0.09	-95	7.95	22.1	9.94	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.47 U	750	< 0.55 U	330,000	3.3	< 0.500 U	NA	192	2,080	NA	900	213,000	<0.6 U
	3/24/2020	6.08	0.08	-100	7.82	7.2	7.86	< 0.5 U	1.4	< 0.5 U	< 0.5 U	< 0.47 U	860	< 0.55 U	510,000	1.41	< 0.500 U	NA	282 J	2,110	NA	940	40,600	20
	6/23/2020	6.10	0.05	-46	6.65	5.4	7.28	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.47 U	1,000	< 0.55 U	390,000	2.45	< 0.100 U	NA	416	2,040	NA	382	41,100	<1.1 U
	12/1/2020	5.99	0.05	4	8.34	21.3	3.81	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.47 U	4,400 J	< 0.55 U	610,000	NA	0.284 J	NA	415 J	2,030	NA	368	52,700	< 1.1 U
	6/2/2021	5.96	0.06	-28	6.51	4.3	11.0	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.47 U	1,000	< 0.55 U	890,000	NA	< 0.500 U	NA	460	1,790	NA	170	5,830	< 1.0 U
35AWW19	11/17/2017	5.27	NR[3]	NR[3]	5.97	26.5	NA	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/8/2018	5.28	NA	NA	6.08	26.4	2.51	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.47 U	< 1.0 U	< 0.55 U	97,000	1.10 J	< 0.0500 U	< 0.0500 U	1,220	1,430	159	0.4 J	< 11.9 U	NA
	7/18/2019	6.08	NR[3]	NR[3]	5.67	12	2.38 J	< 0.5 UJ	< 0.5 UJ	< 0.5 UJ	< 0.5 UJ	< 0.47 U	0.65 J	< 0.55 U	180,000 J	2.78 J	< 0.200 UJ	< 0.200 UJ	983	1,370	199	0.30 J	20,400	<0.5 U
	9/26-27/2018	5.77	0.01	42	5.46	36.1	2.21	< 0.5 U	0.59 J	< 0.5 U	< 0.5 U	< 0.47 U	27	0.32 J	250,000	3.99 J	< 0.200 U	< 0.200 U	989	1,230	213	0.8	148,000	<0.5 U
	12/10/2018	5.94	0.04	-72	5.7	5.2	2.17	< 0.5 U	0.59 J	< 0.5 U	< 0.5 U	< 0.47 U	5.7	< 0.55 U	330,000	4.19 J	< 0.200 U	< 0.200 U	998	1,190	198	0.50 J	99,000	<0.5 U
	3/19/2019	5.37	0.14	70	5.67	80.1	2.20	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.47 U	1.3 J	< 0.55 U	790,000	0.38	< 0.500 U	NA	994	1,140	NA	< 0.50 U	91.5	<0.5 U
	6/3/2019	5.69	0.05	93	5.46	16.6	1.88	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.47 U	1.4	< 0.55 U	560,000	0	< 0.500 U	NA	966	1,080	NA	3.30	62,700	<0.5 U
	9/11/2019	6.1	0.19	77	4.91	8.8	1.19	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.47 U	3.0	<0.55 U	230,000	1.62	< 0.100 U	< 0.100 U	1,010	1,050	NA	18.4	23,600	<0.5 U
	12/18/2019	5.97	0.08	37	4.81	73.5	1.75	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.47 U	2.0	<0.55 U	160,000	2.08	< 0.500 U	NA	997	979	NA	14.8	12,200	<0.5 U
	3/24/2020	5.97	0.04	46	4.61	25.5	1.79	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.47 U	3.1	<0.55 U	200,000	1.86	< 0.100 U	NA	989	922	NA	9.4	12,200	2
	6/24/2020	5.89	0.04	56	4.14	34	1.75	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.47 U	3.0	<0.55 U	160,000	1.97	< 0.100 U	< 0.100 U	1,020	934	NA	2.0	19,700	<0.5 U
	12/3/2020	5.64	0.11	65	4.00	4.5	1.63	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.47 U	4.2	<0.55 U	440,000 J	NA	< 0.100 U	NA	860	786	NA	40.2	30,100	5.5
	6/3/2021	5.32	0.11	122	3.92	10.4	2.38	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.47 U	2.2	<0.55 U	670,000	NA	< 0.200 U	NA	857	746	NA	16.1	24,900	<0.5 U
35AWW20	11/14/2017	5.97	0.04	138	7.71	27.5	13.8	0.80 J	320	53	78	< 0.23 U	18	0.41 J	230,000	0.45 J	< 0.0500 U	< 0.0500 U	2,150	1,730	834	NA	NA	NA
	3/7/2018	6.16	0.6	106	7.97	21.3	14.5	< 5.0 U	330	76	110	< 0.47 U	< 1.3 U	< 0.55 U	370,000	0.69 J	< 0.0500 U	< 0.0500 U	1,840	1,510	848	5.5	1,120	NA
	7/16/2018	6.18	0	-357	7.19	0	43	< 0.5 U	270	69	71	< 0.47 U	0.93 J	< 0.55 U	360,000	1.18 J	< 0.100 U	< 0.100 U	882	1,420	1,450	1.50	5,970,000	<0.9 U
	9/26-27/2018	5.95	0	-206	6.34	11.1	53	0.81 J	170	45	< 0.5 U	< 0.47 U	37	0.66 J	770,000	1.41 J	< 0.200 U	< 0.200 U	922	1,220	1,470	< 1.30 U	3,770,000	<1.3 U
	12/10/2018	6.21	0.07	-270	7.14	48.1	19	1.3	570	120	110	< 0.47 U	440	1.3	720,000	5.01 J	< 0.200 U	< 0.200 U	1,010	1,010	1,190	< 1.90 U	283,000	<1.9 U
	3/19/2019	6.26	0.11	-247	6.94	28.1	12	< 0.5 UJ	180	49 J	54 J	< 0.47 UJ	840	1.94 J	890,000	0.17	< 0.500 U	NA	1,120	1,090	NA	< 1.50 U	14,000	<1.5 U
	6/4/2019	6.65	0.1	-56	6.79	47.1	12.9	< 2.5 U	230	79	140	0.19 J	920	1.3	730,000	0.09	0.194 J	NA	1,240	1,180	NA	15,500	< 21.7 U	2,370
	9/11/2019	6.67	0.03	-45	6.03	9.7	15.0	< 0.5 U	350	110	790	0.24 J	640 J	5.9	290,000 J	1.59	< 0.100 U	< 0.100 U	1,200	902	NA	16,000	386	10,300
	12/19/2019	6.4	0.08	-52	5.78	24.2	13.1	< 5.0 UJ	99 J	70 J	2,800 J	< 0.47 U	310	6.3	270,000	1.34	< 0.100 U	NA	1,170	821	NA	27,800	6,070	49,100
	3/24/2020	6.5	0.05	-94	5.45	7.8	18.3	< 2.5 U	120	71	1,500	< 0.47 U	410	6.0 J	260,000	2.29	< 0.100 UJ	NA	1,020 J	718 J	NA	13,000	954	19,800
	6/24/2020	6.33	0.07	-47	5.45	0	13.9	0.61 J	94	63	2,000	< 0.47 U	260	5.5	250,000	2.5	0.747	< 0.100 U	1,270	911	NA	115,000	3,830	18,400
	12/3/2020	6.37	0.61	94	5.14	5.1	12 J	< 0.5 U	91	63	1,800	< 0.47 U	1,000	11.0	370,000 J	NA	< 0.100 U	NA	1070	727	NA	7,800	436	6,550
	6/3/2021	6.25	0.11	84	5.00	13.3	20.5	< 1.0 U	190	87	780	< 0.47 U	1,500	11	690,000	NA	< 0.200 U	NA	955	615	NA	72,200	13,400	55,800

Table 6
Enhanced In-situ Bioremediation Performance Data Summary-Western Plume
LHAAP-58, Longhorn Army Ammunition Plant, Karnack, Texas
Year 7 RA(O) Report

Monitoring Location	Sample Date	Field Parameters					Electron Donor	cVOCs				Dissolved Gases				Wet Chemistry						Dechlorinating Bacteria		
		pH	DO	ORP	Spec Cond	Turb	TOC	PCE	TCE	cDCE	VC	Ethane	Methane	Ethene	CO_2	Fe^{2+}	NO_3	NO_2	SO_4	Cl^-	Alk	DHC	DHBt	BAV1 VC
		SU	mg/L	mV	ms/cm	NTU	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	cells/mL	cells/mL	cells/mL
35AWW23	3/8/2018	5.92	0.76	185	3.58	89.5	3.31	< 1.0 U	27	21	3.1	< 0.47 U	< 1.0 U	< 0.55 U	500,000	0.13 J	1.2	< 0.0500 U	761	487	608	< 0.5 U	< 4.8 U	NA
	7/17/2018	5.67	0	-167	3.4	178	856	< 0.5 U	2.6	12	< 0.5 U	< 0.47 U	49	0.38 J	370,000	25.1 J	< 0.100 U	< 0.100 U	< 0.500 U	482	914	45.1	9,530	1.7 J
	9/26-27/2018	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/10/2018	5.6	0.05	-86	3.99	32.5	879	< 0.5 U	5.3	20	< 0.5 U	< 0.47 U	2,200	< 0.55 U	810,000	50 J	< 0.200 U	< 0.200 U	4.19	578	1,110	149	< 25.0 U	5
	3/19/2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	6/3/2019	5.74	0.02	-50	4.86	47.7	1,360	< 0.5 U	1.8	4.3	< 0.5 U	< 0.47 U	1,300	< 0.55 U	750,000	0.57	< 0.500 U	NA	14.1	732	NA	652	< 38.5 U	2.5 J
	9/11/2019	6.24	0.02	-44	4.76	26.3	108	< 0.5 U	3.8	7.8	<0.5 U	< 0.47 U	2,700	< 0.55 U	590,000	3.3	< 0.100 U	< 0.100 U	4.63	857	NA	326	< 13.9 U	1.1 J
	12/18/2019	6.17	0.02	-104	4.85	43.2	127	< 0.5 U	2.7	7.6	1.1	< 0.47 U	1,400	< 0.55 U	360,000	1.83	<0.500 U	NA	1.62 J	868	NA	689	< 5.6 U	0.4 J
	3/24/2020	6.23	0.05	-102	4.72	28.6	250	< 0.5 U	1.3	6.5	<0.5 U	< 0.47 U	1,400	< 0.55 U	600,000	2.33	< 0.100 U	NA	1.84	925	NA	136	<5.5 U	1
	6/24/2020	6.17	0.04	-117	4.29	22.6	849	< 1.0 U	< 0.5 U	5.0	<0.5 U	< 0.47 U	1,300	< 0.55 U	310,000	3.01	< 0.100 U	< 0.100 U	1.26	1,160	NA	765	< 5.6 U	13
	12/3/2020	6.32	0.07	-41	4.67	11.5	21.4	< 0.5 U	< 0.5 U	2.7	< 0.5 U	< 0.47 U	3,700	< 0.55 U	540,000 J	NA	< 0.100 U	NA	< 0.500 U	958	NA	557	< 5.3 U	< 0.50 U
	6/3/2021	6.44	0.04	-129	4.95	9.7	19.7	< 1.0 U	< 0.5 U	1.0	< 0.5 U	< 0.47 U	3,700	< 0.55 U	540,000	NA	< 0.200 U	NA	0.401 J	846	NA	3,220	8,200	0.30 J
35AWW24	3/8/2018	5.31	0.66	224	0.487	99.5	1.45	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.47 U	< 1.0 U	< 0.55 U	290,000	0.33 J	0.11	< 0.0500 U	85.7	119	66.5	< 2.0 U	79.9	NA
	7/17/2018	4.98	0	71	0.484	449	1.58	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.47 U	< 1.0 U	< 0.55 U	430,000	0.16 J	0.0640 J	< 0.100 U	73.6	117	52.4	< 1.90 U	137	<1.9 U
	9/26-27/2018	4.52	0	252	0.584	352	0.87	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.47 U	190	< 0.55 U	330,000	0.31 J	< 0.100 U	< 0.100 U	69.9	110	50.8	< 0.50 U	4.6 J	<0.5 U
	12/10/2018	4.41	0.05	38	0.489	514	1.67	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.47 U	68	< 0.55 U	660,000	0.54 J	0.157 J	< 0.100 U	69.9	109	45.9	< 1.20 U	1.50 J	<1.2 U
	3/19/2019	4.79	0.08	154	0.485	213	1.68 J	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.47 U	7.8	< 0.55 U	680,000	1.17	< 0.100 U	NA	70	115	NA	< 0.80 U	< 8.30 U	<0.8 U
	6/3/2019	4.53	0.06	347	0.574	74	1.55 J	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.47 U	4.2	< 0.55 U	530,000	1.17	< 0.100 U	NA	74.9	106	NA	0.90	24.7	<0.5 U
	12/19/2019	5.62	0.03	147	0.551	55.1	NA	< 0.50 UJ	< 0.50 UJ	< 0.50 UJ	< 0.50 UJ	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	6/25/2020	5.55	0.98	143	0.515	25.3	NA	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/3/2020	4.88	0.17	156	0.490	109	NA	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	6/3/2021	5.66	0.31	166	0.537	71.1	NA	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA



-Slight increase in pH following injection is favorable.
'-pH has remained favorable.

-Initial spike in TOC indicates effective substrate distribution to several of the areas.
'-TOC is generally low after the initial spikes observed after the injections.

-Decreasing concentrations of cVOCs.
-Additional time/monitoring necessary to observe complete dechlorination at 35AWW20.

-Increased carbon dioxide indicates metabolism of the injected substrate is occurring.
'-The presence of ethene indicates that complete dechlorination is occuring.

-Decreasing sulfate concentration indicates the onset/development of reducing conditions conducive to reductive dechlorination.

-Initial spike in dechlorinating bacteria counts suggest effective distribution of the bioaugmentation culture.
'-Elevated dechlorinating bacteria still present in the western plume.

Notes:

1. Electron donor injections completed in March 2018
2. Bioaugmentation performed in April 2018
3. Data recorded but not used since bailer was used to collect the sample.

pH = potential of hydrogen
SU = standard units
DO = dissolved oxygen
mg/L = milligrams per liter
ORP = oxidation-reduction potential
mV = millivolts
Spec Cond = specific conductivity
ms/cm = millisiemens per centimeter
Turb = turbidity
NTU = nephelometric turbidity units
TOC = total organic carbon
cVOC = chlorinated volatile organic compounds
PCE = tetrachloroethene
TCE = trichloroethene
cDCE = cis-1,2-dichloroethene
VC = vinyl chloride
µg/L = micrograms per liter
CO_2 = carbon dioxide
Fe^{2+} = ferrous iron
NO_3 = nitrate
NO_2 = nitrite
SO_4 = sulfate
Cl^- = chloride
Alk = alkalinity
DHC = dehalococcoides
DHBt = dehalobacter spp.
cells/mL = cells per milliliter
NA = not analyzed
NR = not recorded
U - Undetected: The analyte was analyzed for, but not detected and reported to the limit of detection
U - The analyte was not detected; however, the result is estimated due to discrepancies in meeting certain analyte-specific quality control criteria.
J - Estimated: Between the method detection limit and reporting limit and/or due to discrepancies in meeting certain analyte-specific quality control criteria.

Table 7
Year 8 RA(O) Groundwater Monitoring Plan
LHAAP-58, Longhorn Army Ammunition Plant, Karnack, Texas
Year 7 RA(O) Report

Well Identification	Well description	Year 6 RA(O)				Year 7 RA(O)		Year 8 RA(O)	
		Sep-19	Dec-19	Mar-20	Jun-20	Dec-20	Jun-21	Dec-21	Jun-22
LHAAP-35A(58)		Western Plume Quarterly Performance Sampling	Western Plume Quarterly Performance Sampling/Eastern Plume Semi-Annual Sampling	Western Plume Quarterly Performance Sampling	Western Plume Quarterly Performance Sampling/Eastern Plume Semi-Annual Sampling	Eastern and Western Plume Semi-Annual Sampling	Eastern and Western Plume Semi-Annual Sampling	Western Plume Semi-Annual Sampling	Western Plume Semi-Annual/Eastern Plume Annual Sampling
35ASW03	Surface Water Sample		Dry		Dry	Dry	VOCs		VOCs
03WW01	Shallow		VOCs, MNA, VFA, DHB/DHC, As		VOCs, MNA, VFA, DHB/DHC, As	VOCs, MNA, VFA, DHB/DHC, As	VOCs, MNA, VFA, DHB/DHC, As		VOCs, As
35AWW01	Intermediate		VOCs		VOCs	VOCs, As	VOCs, As		VOCs, As
35AWW04	Shallow							VOCs, MNA, As	VOCs, As
35AWW05	Intermediate					VOCs	VOCs	VOCs	VOCs
35AWW06	Shallow	VOCs, MNA, VFA, DHB/DHC	VOCs, MNA, VFA, DHB/DHC	VOCs, MNA, VFA, DHB/DHC	VOCs, MNA, VFA, DHB/DHC	VOCs, MNA, VFA, DHB/DHC	VOCs, MNA, VFA, DHB/DHC	VOCs, MNA, VFA, DHB/DHC	VOCs, MNA, VFA, DHB/DHC
35AWW08	Shallow		VOCs, MNA, VFA, As		VOCs, MNA, VFA, DHB/DHC, As	VOCs, MNA, VFA, DHB/DHC, As	VOCs, MNA, VFA, DHB/DHC, As		VOCs, As
35AWW09	Shallow		VOCs, MNA, VFA, DHB/DHC, As		VOCs, MNA, VFA, As	VOCs, MNA, VFA, As	VOCs, MNA, VFA, As		VOCs, As
35AWW10	Shallow		VOCs, MNA, VFA		VOCs	VOCs	VOCs		VOCs
35AWW11	Shallow	VOCs, MNA, VFA, DHB/DHC	VOCs, MNA, VFA, DHB/DHC	VOCs, MNA, VFA, DHB/DHC	VOCs, MNA, VFA, DHB/DHC	VOCs, MNA, VFA, DHB/DHC	VOCs, MNA, VFA, DHB/DHC	VOCs, MNA, VFA, DHB/DHC	VOCs, MNA, VFA, DHB/DHC
35AWW12	Shallow		VOCs		VOCs	VOCs	VOCs		VOCs
35AWW13	Shallow		VOCs		VOCs	VOCs	VOCs		VOCs
35AWW14	Shallow		VOCs		VOCs	VOCs	VOCs		VOCs
35AWW15	Shallow		VOCs		VOCs	VOCs	VOCs	VOCs	VOCs
35AWW16	Shallow		VOCs		VOCs	VOCs	VOCs		VOCs
35AWW17	Shallow		VOCs		VOCs	VOCs	VOCs		VOCs
35AWW18	Shallow		VOCs		VOCs	VOCs	VOCs		VOCs

Table 7
Year 8 RA(O) Groundwater Monitoring Plan
LHAAP-58, Longhorn Army Ammunition Plant, Karnack, Texas
Year 7 RA(O) Report

Well Identification	Well description	Year 6 RA(O)				Year 7 RA(O)		Year 8 RA(O)	
		Sep-19	Dec-19	Mar-20	Jun-20	Dec-20	Jun-21	Dec-21	Jun-22
LHAAP-35A(58)		Western Plume Quarterly Performance Sampling	Western Plume Quarterly Performance Sampling/Eastern Plume Semi-Annual Sampling	Western Plume Quarterly Performance Sampling	Western Plume Quarterly Performance Sampling/Eastern Plume Semi-Annual Sampling	Eastern and Western Plume Semi-Annual Sampling	Eastern and Western Plume Semi-Annual Sampling	Western Plume Semi-Annual Sampling	Western Plume Semi-Annual/Eastern Plume Annual Sampling
35AWW19	Shallow	VOCs, MNA, VFA, DHB/DHC	VOCs, MNA, VFA, DHB/DHC	VOCs, MNA, VFA, DHB/DHC	VOCs, MNA, VFA, DHB/DHC	VOCs, MNA, VFA, DHB/DHC	VOCs, MNA, VFA, DHB/DHC	VOCs, MNA, VFA, DHB/DHC	VOCs, MNA, VFA, DHB/DHC
35AWW20	Shallow	VOCs, MNA, VFA, DHB/DHC	VOCs, MNA, VFA, DHB/DHC	VOCs, MNA, VFA, DHB/DHC	VOCs, MNA, VFA, DHB/DHC, As	VOCs, MNA, VFA, DHB/DHC, As	VOCs, MNA, VFA, DHB/DHC, As	VOCs, MNA, VFA, DHB/DHC, As	VOCs, MNA, VFA, DHB/DHC, As
35AWW21	Shallow		VOCs		VOCs	VOCs	VOCs		VOCs
35AWW22	Shallow		VOCs		VOCs	VOCs	VOCs		VOCs
35AWW23	Shallow, New Wells South of Avenue G in center of Western Plume	VOCs, MNA, VFA, DHB/DHC	VOCs, MNA, VFA, DHB/DHC	VOCs, MNA, VFA, DHB/DHC	VOCs, MNA, VFA, DHB/DHC	VOCs, MNA, VFA, DHB/DHC	VOCs, MNA, VFA, DHB/DHC	VOCs, MNA, VFA, DHB/DHC	VOCs, MNA, VFA, DHB/DHC
35AWW24	Shallow, Downgradient Western Plume well		VOCs		VOCs	VOCs	VOCs	VOCs	VOCs
LHSMW04	Shallow		Dry		Dry	VOCs, MNA, As	VOCs, MNA, As	VOCs, MNA, As	VOCs, As
LHSMW06	Shallow		VOCs, As		VOCs, As	VOCs, As	VOCs, As	VOCs, As	VOCs, As
LHSMW07	Shallow	VOCs, MNA, VFA, DHB/DHC	VOCs, MNA, VFA, DHB/DHC	VOCs, MNA, VFA, DHB/DHC	VOCs, MNA, VFA, DHB/DHC	VOCs, MNA, VFA, DHB/DHC	VOCs, MNA, VFA, DHB/DHC	VOCs, MNA, VFA, DHB/DHC	VOCs, MNA, VFA, DHB/DHC

Notes:
VOCs - Volatile Organic Compounds
MNA - Monitored Natural Attenuation (parameters include: total organic carbon, anions [sulfate, chloride, nitrate, and nitrite], and dissolved gasses [carbon dioxide, methane, ethane, and ethene
VFA - Volatile Fatty Acids
DHB - Dehalobacter
DHC - Dehalococcoides
As - Arsenic

APPENDIX A
ANNUAL LAND USE CONTROL COMPLIANCE CERTIFICATION DOCUMENTATION

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Annual Land Use Control Compliance Certification Documentation

In accordance with the Remedial Design dated September 2011, for LHAAP-58, a certification of site was conducted by Bhate Environmental Associates, Inc. on 6/23/21.

A summary of land use control mechanism is as follows:

- Groundwater restriction – restriction of the use of groundwater to environmental monitoring and testing until cleanup levels are met

A Summary of compliance with land use and restriction covenants is as follows:

- No use of groundwater, installation of new groundwater wells, or tampering with existing wells at LHAAP-58.

I, the undersigned, do document that the certification was performed as indicated above, and that the above information is true and correct to the best of my knowledge, information and belief.

Date: June 23, 2021

Name/Title: Kennie Moore / Field Tech

Signature: Kennie Moore

APPENDIX B
PHOTOGRAPHIC LOG

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Longhorn Army Ammunition Plant Site LHAAP-35A (58) Photograph Log June 2021

Photo 1: 03WW01 in good condition.

Photo 2: Surface water sampling location 35ASW03 with surface water present in June 2021.

Longhorn Army Ammunition Plant Site LHAAP-35A (58) Photograph Log June 2021

Photo 3: 35AWW01 in good condition.

Photo 4: 35AWW05 in good condition.

Longhorn Army Ammunition Plant Site LHAAP-35A (58) Photograph Log June 2021

Photo 3: 35AWW06 in good condition.

Photo 4: 35AWW08 in good condition.

Longhorn Army Ammunition Plant Site LHAAP-35A (58) Photograph Log June 2021

Photo 5: 35AWW08 in good condition.

Photo 6: 35AWW10 in good condition.

Longhorn Army Ammunition Plant Site LHAAP-35A (58) Photograph Log June 2021

Photo 7: 35AWW11 in good condition.

Photo 8: 35AWW12 in good condition.

Longhorn Army Ammunition Plant Site LHAAP-35A (58) Photograph Log June 2021

Photo 9: 35AWW13 in good condition.

Photo 10: 35AWW14 in good condition.

Longhorn Army Ammunition Plant Site LHAAP-35A (58) Photograph Log June 2021

Photo 11: 35AWW15 in good condition.

Photo 12: 35AWW16 in good condition.

Longhorn Army Ammunition Plant Site LHAAP-35A (58) Photograph Log June 2021

Photo 13: 35AWW17 in good condition.

Photo 14: 35AWW18 in good condition.

Longhorn Army Ammunition Plant Site LHAAP-35A (58) Photograph Log June 2021

Photo 15: 35AWW19 in good condition.

Photo 16: 35AWW20 in good condition.

Longhorn Army Ammunition Plant Site LHAAP-35A (58) Photograph Log June 2021

Photo 17: 35AWW21 in good condition.

Photo 18: 35AWW22 in good condition.

Longhorn Army Ammunition Plant Site LHAAP-35A (58) Photograph Log June 2021

Photo 19: 35AWW23 in good condition.

Photo 20: 35AWW24 in good condition.

Longhorn Army Ammunition Plant Site LHAAP-35A (58) Photograph Log June 2021

Photo 21: LHSMW04 in good condition.

Photo 22: LHSMW06 in good condition.

Longhorn Army Ammunition Plant Site LHAAP-35A (58) Photograph Log June 2021

Photo 23: LHSMW07 in good condition.

APPENDIX C
WELL INSPECTION FORMS

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01071780

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW01312.0150
Client: Army
Site Name: 58
Well ID: 03WW01
Inspection Date: 12/1/20
Well Completion Depth/ Measured Depth: 33.40
Inspector: Scott Bressinger

☒ ABOVE GROUND
Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☐ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED
Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:
Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:
Inner Diameter (inches): 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:
Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW01312.0150
Client: Army
Site Name: 58
Well ID: 35AWW08
Inspection Date: 12/1/20
Well Completion Depth/ Measured Depth: 33.30
Inspector: Scott Beesinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 2 11
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☒ Yes ☐ No
Is well open to completed depth? (complete when gauging)
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01071782

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW01312.0150
Client: Army
Site Name: 58
Well ID: 35AWW11
Inspection Date: 12/1/20
Well Completion Depth/ Measured Depth: 37.88
Inspector: Scott Bassinger

ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☐ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01071783

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW01312.0150
Client: Army
Site Name: 58
Well ID: 35AWW06
Inspection Date: 12/1/20
Well Completion Depth/ Measured Depth: 30, 30
Inspector: Scott Bassinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☒ Yes ☐ No
Is well open to completed depth? (complete when gauging)
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01071784

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW01312.0150
Client: Army
Site Name: 58
Well ID: 35HWW17
Inspection Date: 12/1/20
Well Completion Depth/ Measured Depth: 42.31
Inspector: Scott Bassinger

ABOVE GROUND
Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: MetAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☐ Good ☐ Less than 50% rusted ☒ More than 50% rusted

FLUSH MOUNTED
Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:
Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:
Inner Diameter (inches): 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:
Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☒ Yes ☐ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01071785

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW01312.0150
Client: Army
Site Name: 58
Well ID: 35AWW18
Inspection Date: 12/1/20
Well Completion Depth/ Measured Depth: 42.11
Inspector: Scott Beesinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01071786

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW01312.0150
Client: ARMY
Site Name: 58
Well ID: 35ANW16
Inspection Date: 12/1/20
Well Completion Depth/ Measured Depth: 37.36
Inspector: Scott Beesinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☒ Yes ☐ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01071787

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NWD1312.0150
Client: ARmy
Site Name: 58
Well ID: 35AWW15
Inspection Date: 12/1/20
Well Completion Depth/ Measured Depth: 4.35
Inspector: Scott Beesinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☐ Good ☐ Less than 50% rusted ☒ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 2 11
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☒ Yes ☐ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01071788

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW01312.0150
Client: Army
Site Name: 58
Well ID: 35AWW20
Inspection Date: 12/3/20
Well Completion Depth/ Measured Depth: 42.88
Inspector: Scott Bessinger

ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☐ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01071789

WELL INSPECTION FORM

Job Name: LTAAP
Job No.: NW013I2.0150
Client: ARmy
Site Name: 58
Well ID: LHSmw07
Inspection Date: 12/3/20
Well Completion Depth/ Measured Depth: 30.41
Inspector: Scott Beesinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01071790

WELL INSPECTION FORM

Job Name: HAAP
Job No.: AW01312.0150
Client: ARMY
Site Name: 58
Well ID: 35AWW05
Inspection Date: 12/3/20
Well Completion Depth/ Measured Depth: 72.35
Inspector: Scott Beesinger

ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01071791

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW01312.0150
Client: ARMY
Site Name: 58
Well ID: 35MW023
Inspection Date: 12/3/20
Well Completion Depth/ Measured Depth: 43.72
Inspector: Scott Baysinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01071792

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NWO 1312.0150
Client: ARMY
Site Name: 58
Well ID: 35AWW19
Inspection Date: 12/3/20
Well Completion Depth/ Measured Depth: 32.42
Inspector: Scott Bassinger

ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☐ Cracked
Hinge Condition: ☐ Good ☐ Less than 50% rusted ☒ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☒ Yes ☐ No
Is well open to completed depth? (complete when gauging)
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01071793

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW013I2.0150
Client: ARMY
Site Name: 58
Well ID: LHSMW06
Inspection Date: 12/3/20
Well Completion Depth/ Measured Depth: 23.50
Inspector: Scott Beesinger

☒ ABOVE GROUND
Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED
Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:
Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:
Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:
Bailer present? ☐ Yes ☒ No
Visual obstruction? ☒ Yes ☐ No
Is well open to completed depth? (complete when gauging)
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01071794

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW01312.0150
Client: ARMY
Site Name: 58
Well ID: LHSMW04
Inspection Date: 12/3/20
Well Completion Depth/ Measured Depth: 31.00
Inspector: Scott Beesinger

ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01071795

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW01312.0150
Client: Army
Site Name: 58
Well ID: 35AWW24
Inspection Date: 12/3/20
Well Completion Depth/ Measured Depth: 35.00
Inspector: Scott Barsinger

☒ ABOVE GROUND
Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED
NA
Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:
Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:
Inner Diameter (inches): 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:
Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging)

COMMENTS:

01071796

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW01312.0150
Client: Army
Site Name: 58
Well ID: 35AWW14
Inspection Date: 12/7/20
Well Completion Depth/ Measured Depth: 32.35
Inspector: Scott Roessinger

ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01071797

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW013L2.0150
Client: Army
Site Name: SB

Well ID: 35AWW10
Inspection Date: 12/7/20
Well Completion Depth/ Measured Depth: 33.65
Inspector: Scott Beesinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☐ Good ☐ Less than 50% rusted ☒ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☒ Yes ☐ No
Is well open to completed depth? (complete when gauging)
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01071798

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW01312.0150
Client: ARNG
Site Name: 58
Well ID: 35AWW13
Inspection Date: 12/7/20
Well Completion Depth/ Measured Depth: 40.20
Inspector: Scott Baggenger

ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01071799

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW01312.0150
Client: ARMY
Site Name: 58
Well ID: 35AWN01
Inspection Date: 12/7/20
Well Completion Depth/ Measured Depth: 72.45
Inspector: Scott Beesinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches) 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01071800

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW01312.0150
Client: Army
Site Name: 58

Well ID: 35AWW09
Inspection Date: 12/7/20
Well Completion Depth/ Measured Depth: 42.08
Inspector: Scott Beesinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☐ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01071801

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW01312.0150
Client: Army
Site Name: 58
Well ID: 35AWW21
Inspection Date: 12/7/20
Well Completion Depth/ Measured Depth: 42.81
Inspector: Scott Bassinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☐ Good ☐ Less than 50% rusted ☒ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): Ø 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☒ Yes ☐ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01071802

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW01312.0150
Client: ARMY
Site Name: 58
Well ID: 35AWW22
Inspection Date: 12/7/20
Well Completion Depth/Measured Depth: 37.68
Inspector: Scott BEESINGAR

ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☐ Good ☐ Less than 50% rusted ☒ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01071803

WELL INSPECTION FORM

Job Name: CHAAP
Job No.: NW01312.0150
Client: ARMY
Site Name: 58

Well ID: 35AWW12
Inspection Date: 12/7/20
Well Completion Depth/ Measured Depth: 37.55
Inspector: Scott Bassinger

[X] ABOVE GROUND

Well Accessible? [X] Yes [ ] No
Protective casing? [X] Yes [ ] No
Material: METAL
Condition: [X] Good [ ] Broken [ ] Cracked [ ] Need Paint
Lid Condition: [X] Good [ ] Broken [ ] Cracked
Hinge Condition: [ ] Good [ ] Less than 50% rusted [X] More than 50% rusted

[ ] FLUSH MOUNTED

Well cover present? NA [ ] Yes [ ] No
Condition: [ ] Good [ ] Broken [ ] Cracked
Condition of Sump: [ ] Clean [ ] Dry [ ] Standing Water

CONCRETE PAD:

Sloped away from casing? [X] Yes [ ] No
Pad Area Cleared of Vegetation? [X] Yes [ ] No
Check any of the following features that apply:
[ ] Many Cracks [ ] Gap Around Casing [ ] Few Cracks [ ] Ponded Water [ ] No Pad Present

WELL CONDITION:

Inner Diameter (inches): 2"
Condition: [X] Good [ ] Broken [ ] Cracked [ ] Other (describe)
Cap present? [X] Yes [ ] No
Well lock present? [X] Yes [ ] No
Lock functioning properly? [X] Yes [ ] No
Are bollards present and stable? [X] Yes [ ] No
Well ID visible? [X] Yes [ ] No

WELL INTEGRITY:

Bailer present? [ ] Yes [X] No
Visual obstruction? [ ] Yes [X] No
Is well open to completed depth? (complete when gauging) [X] Yes [ ] No
Is silt present in well? (complete when gauging) [X] Yes [ ] No
Is silt greater than 10% of well screen length? (complete when gauging) [ ] Yes [X] No

COMMENTS:

01071804

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW01312.0150
Client: ARMY
Site Name: 58
Well ID: 35AWW14
Inspection Date: 6/1/21
Well Completion Depth/ Measured Depth: 32.28
Inspector: Scott Bessinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01071805

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NWO 1312.0150
Client: Army
Site Name: 58
Well ID: 35AWW001
Inspection Date: 6/1/21
Well Completion Depth/ Measured Depth: 72.62
Inspector: Scott Beesinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☐ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01071806

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW01312.0150
Client: Army
Site Name: 58
Well ID: 35AWW13
Inspection Date: 6/1/21
Well Completion Depth/Measured Depth: 39.28
Inspector: Scott Beesinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☐ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☒ Yes ☐ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01071807

WELL INSPECTION FORM

Job Name: LTAAP
Job No.: NW01312.0150
Client: Army
Site Name: 58
Well ID: 35AWW10
Inspection Date: 6/1/21
Well Completion Depth/ Measured Depth: 33.65
Inspector: Scott Baggenger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☐ Good ☐ Less than 50% rusted ☒ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☒ Yes ☐ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01071808

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW01312.0150
Client: ARMY
Site Name: 58
Well ID: 35AWW15
Inspection Date: 6/1/21
Well Completion Depth/ Measured Depth: 41.30
Inspector: Scott Beesinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☐ Good ☐ Less than 50% rusted ☒ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☒ Yes ☐ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01071809

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW01312.0150
Client: Army
Site Name: 58

Well ID: 35AWW16
Inspection Date: 6/1/21
Well Completion Depth/ Measured Depth: 37.45
Inspector: Scott Bassinger

ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☐ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01071810

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW01312.0150
Client: ARmy
Site Name: 58
Well ID: 35AWW18
Inspection Date: 6/1/21
Well Completion Depth/ Measured Depth: 42.08
Inspector: Scott Beesinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01071811

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW01312.0150
Client: Army
Site Name: 58
Well ID: 35AWW24
Inspection Date: 6/1/21
Well Completion Depth/ Measured Depth: 35.03
Inspector: Scott Beesinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☐ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): ~~6~~ 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☒ Yes ☐ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01071812

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW01312.0150
Client: ARMY
Site Name: 58
Well ID: 35HWW21
Inspection Date: 6/1/21
Well Completion Depth/ Measured Depth: 42.80
Inspector: Scott Baesinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☐ Cracked
Hinge Condition: ☐ Good ☐ Less than 50% rusted ☒ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches) 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☒ Yes ☐ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01071813

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NWO 1312.0150
Client: Army
Site Name: 58
Well ID: 35AWW09
Inspection Date: 6/2/21
Well Completion Depth/ Measured Depth: 42.12
Inspector: Scott Beesinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☐ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☒ Yes ☐ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01071814

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NWD1312.0150
Client: ARMY
Site Name: 58
Well ID: 03WW01
Inspection Date: 6/2/21
Well Completion Depth/ Measured Depth: 33.36
Inspector: Scott Baessler

☑ ABOVE GROUND
Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☐ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED
Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:
Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:
Inner Diameter (inches): 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:
Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☒ Yes ☐ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW01312.0150
Client: Army
Site Name: 58
Well ID: 35A NW08
Inspection Date: 6/2/21
Well Completion Depth/Measured Depth: 33.33
Inspector: Scott Bagsinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): ≥11
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01071816

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW01312.0150
Client: Army
Site Name: 58
Well ID: 35AWW11
Inspection Date: 6/2/21
Well Completion Depth/ Measured Depth: 37.88
Inspector: Scott Baessinger

☒ ABOVE GROUND
Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED NA
Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:
Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:
Inner Diameter (inches): 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:
Bailer present? ☐ Yes ☒ No
Visual obstruction? ☒ Yes ☐ No
Is well open to completed depth? (complete when gauging)
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01071817

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW01312.0150
Client: Army
Site Name: 58
Well ID: LHSMW07
Inspection Date: 6/2/21
Well Completion Depth/ Measured Depth: 30.45
Inspector: Scott Bassinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☒ Yes ☐ No
Is well open to completed depth? (complete when gauging)
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01071818

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW01312.0150
Client: Army
Site Name: 58
Well ID: 35AWW05
Inspection Date: 6/2/21
Well Completion Depth/ Measured Depth: 72.08
Inspector: Scott Bassinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01071819

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW01312.0150
Client: ARmy
Site Name: 58
Well ID: 35A MW22
Inspection Date: 6/2/21
Well Completion Depth/ Measured Depth: 37.68
Inspector: Scott Beesinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☐ Good ☐ Less than 50% rusted ☒ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☒ Yes ☐ No
Is well open to completed depth? (complete when gauging)
Is silt present in well? (complete when gauging) ☒ Yes ☐ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01071820

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW01312.0150
Client: ARMY
Site Name: 58
Well ID: 35AWW12
Inspection Date: 6/2/21
Well Completion Depth/ Measured Depth: 37.55
Inspector: Scott Bassinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☐ Good ☐ Less than 50% rusted ☒ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☒ Yes ☐ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01071821

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW01312.0150
Client: ARMY
Site Name: 58
Well ID: 35AWW19
Inspection Date: 6/3/21
Well Completion Depth/ Measured Depth: 32.43
Inspector: Scott Beesinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☐ Good ☐ Less than 50% rusted ☒ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☒ Yes ☐ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01071822

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW0 1312.0150
Client: Army
Site Name: 58
Well ID: 35AWW23
Inspection Date: 6/3/21
Well Completion Depth/ Measured Depth: 43.72
Inspector: Scott Beesinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01071823

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW0312.0150
Client: Army
Site Name: 58
Well ID: 35AMW20
Inspection Date: 6/3/21
Well Completion Depth/ Measured Depth: 36.05
Inspector: Scott Beesinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01071824

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW01312.0150
Client: ARmy
Site Name: 58
Well ID: LHSmw04
Inspection Date: 6/3/21
Well Completion Depth/ Measured Depth: 31.02
Inspector: Scott Bressinger

ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☒ Yes ☐ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01071825

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW01312.0150
Client: Army
Site Name: 58
Well ID: LHSmw06
Inspection Date: 6/3/21
Well Completion Depth/ Measured Depth: 23.45
Inspector: Scott Beesinger

ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☒ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☒ More than 50% rusted

☐ FLUSH MOUNTED

NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01071826

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW01312.0150
Client: Army
Site Name: 58
Well ID: 35AMW06
Inspection Date: 6/3/21
Well Completion Depth/ Measured Depth: 30.30
Inspector: Scott Baessinger

☒ ABOVE GROUND
Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED
Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:
Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:
Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:
Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☒ Yes ☐ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01071827

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW01312.0150
Client: ARmy
Site Name: 58
Well ID: 35AWW17
Inspection Date: 6/3/21
Well Completion Depth/ Measured Depth: 42.30
Inspector: Scott Beesinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☐ Good ☐ Less than 50% rusted ☒ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☒ Yes ☐ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

APPENDIX D
TECHNICAL MEMORANDUM - MONITORED NATURAL ATTENUATION MONITORING PARAMETERS

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DEPARTMENT OF THE ARMY
LONGHORN ARMY AMMUNITION PLANT
POST OFFICE BOX 220
RATCLIFF, AR 72951

February 26, 2019

DAIM-ODB-LO

Mr. Rich Mayer
U.S. Environmental Protection Agency
Federal Facilities Section R6
1445 Ross Avenue
Dallas, TX 75202-2733

Re: Final Technical Memorandum – Monitored Natural Attenuation Monitoring Parameters, Longhorn Army Ammunition Plant, Karnack, Texas, February 2019

Dear Mr. Mayer,

One hard copy and one compact disc (CD) of the above-referenced document is being transmitted to you for your records. Comments, not requiring revisions, were received on the Draft version of the document from Environmental Protection Agency (EPA) and from Texas Commission on Environmental Quality (TCEQ) on February 15, 2019.

The document was prepared by Bhate Environmental Associates, Inc., (Bhate) team, on behalf of the Army as part of Bhate's Performance Based Remediation contract for the facility. I ask that Kim Nemmers, Bhate's Project Manager, be copied on any communications related to the project.

The point of contact for this action is the undersigned. I may be contacted at 479-635-0110, or by email at rose.m.zeiler.civ@mail.mil.

Sincerely,

Rose M. Zeiler, Ph.D.
Longhorn AAP Site Manager

Copies furnished:
A. Palmie, TCEQ, Austin, TX (1 HC and 1 CD)
P. Bruckwicki, Caddo Lake NWR, TX (1 HC and 1 CD)
A. Williams, USACE, Fort Worth District, TX (1 CD)
A. Maly, USAEC, San Antonio, TX (1 CD)
K. Nemmers, Bhate, Lakewood, CO (1 HC and 1 CD)
P. Srivastav, APTIM, Houston, TX (letter)

DEPARTMENT OF THE ARMY
LONGHORN ARMY AMMUNITION PLANT
POST OFFICE BOX 220
RATCLIFF, AR 72951

February 26, 2019

DAIM-ODB-LO

Ms. April Palmie
Texas Commission on Environmental Quality
Superfund Section, MC-136
12100 Park 35 Circle, Bldg D
Austin, TX 78753

Re: Final Technical Memorandum – Monitored Natural Attenuation Monitoring Parameters, Longhorn Army Ammunition Plant, Karnack, Texas, February 2019

Dear Ms. Palmie,

One hard copy and one compact disc (CD) of the above-referenced document is being transmitted to you for your records. Comments, not requiring revisions, were received on the Draft version of the document from Environmental Protection Agency (EPA) and from Texas Commission on Environmental Quality (TCEQ) on February 15, 2019.

The document was prepared by Bhate Environmental Associates, Inc., (Bhate) team, on behalf of the Army as part of Bhate's Performance Based Remediation contract for the facility. I ask that Kim Nemmers, Bhate's Project Manager, be copied on any communications related to the project.

The point of contact for this action is the undersigned. I may be contacted at 479-635-0110, or by email at rose.m.zeiler.civ@mail.mil.

Sincerely,

Rose M. Zeiler, Ph.D.
Longhorn AAP Site Manager

Copies furnished:
R. Mayer, USEPA Region 6, Dallas, TX (1 HC and 1 CD)
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A. Williams, USACE, Fort Worth District, TX (1 CD)
A. Maly, USAEC, San Antonio, TX (1 CD)
K. Nemmers, Bhate, Lakewood, CO (1 HC and 1 CD)
P. Srivastav, APTIM, Houston, TX (letter)

Final

Technical Memorandum – Monitored Natural Attenuation Monitoring Parameters

Longhorn Army Ammunition Plant
Karnack, Texas

Prepared for U.S. Army Corps of Engineers, Tulsa District
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Task Order No. W9128BV17F0150
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Acronyms and Abbreviations

APTIM	Aptim Federal Services, LLC
LHAAP	Longhorn Army Ammunition Plant
LUC	land use controls
MNA	monitored natural attenuation
RACR	Remedial Action Completion Report
RA-O	Remedial Action Operation
RAWP	Remedial Action Work Plan
TCE	trichloroethene

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1.0 INTRODUCTION

The purpose of this Technical Memorandum is to create a standard list of monitored natural attenuation (MNA) parameters across Longhorn Army Ammunition Plant (LHAAP) sites and eliminate analysis that are either redundant or not useful for the evaluation of MNA effectiveness. MNA with land use controls (LUCs) is the selected remedy to remediate trichloroethene (TCE) plumes in the groundwater at sites LHAAP-37, LHAAP-67, LHAAP-50, LHAAP-46, and LHAAP-58. On **Table 1**, each site and the three documents, Remedial Action Work Plan (RAWP), Remedial Action Completion Report (RACR), and Remedial Action Operation (RA-O), are listed and cross-referenced with the MNA parameters cited in each document.

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2.0 CURRENT REMEDIAL ACTION OPERATION (RA-O) MONITORING

Currently the list of MNA analytical parameters inclusive of all the sites includes anions (sulfate, sulfide, nitrate, nitrite, and chloride), methane, ethane, ethene, carbon dioxide, total iron, dissolved iron (ferrous) conducted in the lab and in the field, dissolved manganese, total phosphorus, alkalinity, total organic and inorganic carbon as shown on **Table 1**. Some of these analyses are redundant or are not required for the evaluation of MNA at LHAAP sites.

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3.0 PROPOSED PATH FORWARD

The proposed path is to optimize the MNA analytical list so that it is consistent across all sites. The optimization of analytical list will make the sampling and evaluation more accurate and efficient. The optimization includes eliminating MNA parameters that are redundant or nonessential, including alkalinity, nitrite, sulfide, total inorganic carbon, total iron, the lab analysis for dissolved iron and dissolved manganese, and total phosphorous.

Rationale for eliminating these parameters is as follows:

- Alkalinity is used as an indicator of microbial growth, because it is affected by microbial respiration off gases like carbon dioxide. Since alkalinity is affected by carbon dioxide, which is currently being analyzed, it is recommended that alkalinity be removed from the analytical list.
- Nitrate and sulfate concentrations at LHAAP sites are below levels that may inhibit reductive dechlorination, and therefore the reduced states of these chemicals, nitrite and sulfide, are not expected to be observed, and are recommended to be removed from the analytical list. Nitrate and sulfate will remain on analytical list to evaluate increased levels that may inhibit biological reactions in the future.
- Total organic carbon is essential for the MNA analysis; however, total inorganic carbon does not provide useful data and is recommended to be removed from the analytical list.
- The analysis for ferrous iron is being conducted in the field during sample collection and provides the most representative data to determine if iron reducing conditions are present in the groundwater. Total iron analysis for groundwater includes both solid (ferric) and dissolved (ferrous) forms of iron and does not provide useful data in the evaluation of MNA. Therefore, it is recommended that the lab analysis for total iron, and dissolved iron be removed from the analytical list. The field analysis for ferrous iron will remain on the on the analytical list.
- Dissolved manganese is also used to evaluate the reduced state in groundwater, like dissolved iron. The dissolved manganese analysis is redundant, because field analysis for dissolved iron is being retained, and recommended be removed from the analytical list.
- Total phosphorus does not provide essential data the analysis of MNA and is recommended for removal from the analytical list.

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The proposed list of analysis which are consistent across each site include nitrate, sulfate, chloride, methane, ethane, ethene, carbon dioxide, total organic carbon, and field analyzed ferrous iron and is provided on **Table 2**.

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4.0 CONCLUSION

Currently, each of the sites where MNA and LUC are the selected remedy, there is a different list and some of the analyses are redundant or not useful. It is recommended that the following analyses are removed from the MNA parameter list for all sites: alkalinity, nitrite, sulfide, total inorganic carbon, total iron, lab analyzed ferrous iron, dissolved manganese, and total phosphorus. The updated list includes nitrate, sulfate, chloride, methane, ethane, ethene, carbon dioxide, total organic carbon, and field analyzed ferrous iron. The recommended list of parameters will remove redundancy and create more consistent evaluations of the MNA processes in the future.

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Tables

Table 1
MNA Parameter and LHAAP Site Comparison

	LHAAP-37			LHAAP-67			LHAAP-50			LHAAP-46			LHAAP-58		
MNA Parameter	RAWP	RACR	RA-O	RAWP	RACR	RA-O	RAWP	RACR	RA-O	RAWP	RACR	RA-O	RAWP	RACR	RA-O
Alkalinity							x	x	x	x	x	x	x	x	x
Nitrate	x	x		x	x	x	x	x	x	x	x	x	x	x	x
Nitrite		x		x	x	x	x	x	x	x	x	x	x	x	x
Sulfate	x	x		x	x	x	x	x	x	x	x	x	x	x	x
Sulfide		x				x	x	x	x	x	x	x	x	x	x
Chloride	x	x		x	x	x	x	x	x	x	x	x	x	x	x
Methane	x	x		x	x	x	x	x	x	x	x	x	x	x	x
Ethane	x	x		x	x	x	x	x	x	x	x	x	x	x	x
Ethene	x	x		x	x	x	x	x	x	x	x	x	x	x	x
Carbon Dioxide						x	x	x	x	x	x	x	x	x	x
Total Organic Carbon	x	x		x	x	x	x	x	x	x	x	x	x	x	x
Total Inorganic Carbon	x	x		x	x	x									
Iron (dissolved) -field	x	x		x	x	x									x
Iron (dissolved) -lab							x	x	x	x	x	x	x	x	x
Total Iron							x	x	x	x	x	x	x	x	x
Manganese (dissolved)							x	x	x	x	x	x	x	x	x
Total Iron							x	x	x	x	x	x	x	x	x
Total Phosphorous							x	x	x	x	x	x	x	x	x

Notes:

LHAAP-37 RA-O does not list MNA parameters because the Y1Q1 report has not been finalized.

LHAAP - Longhorn Army Ammunition Plant

MNA - monitored natural attenuation

RAWP - Remedial Action Work Plan

RACR - Remedial Action Completion Report

RA-O - Remedial Action Operation

Table 2
Proposed LHAAP MNA Parameters

MNA Parameter	LHAAP-37	LHAAP-67	LHAAP-50	LHAAP-46	LHAAP-58
Nitrate	X	X	X	X	X
Sulfate	X	X	X	X	X
Chloride	X	X	X	X	X
Methane	X	X	X	X	X
Ethane	X	X	X	X	X
Ethene	X	X	X	X	X
Carbon Dioxide	X	X	X	X	X
Total Organic Carbon	X	X	X	X	X
Iron (dissolved) -field	X	X	X	X	X

Notes:

MNA - monitored natural attenuation

LHAAP - Longhorn Army Ammunition Plant

APPENDIX E
MONITORING WELL SAMPLE COLLECTION FORMS

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GROUNDWATER SAMPLE COLLECTION FORM

LOCATION	Site: LHAAP - 58	Location ID: 03WW01	Date: 12/1/20
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 2in	Unit Casing Volume (gal/lin ft) (A): 0.16	Initial Depth to Water (ft) (B): 29.33
	Total Well Depth (ft) (C): 33.40	Water Column Thickness (ft) (C-B): 4.07	2nd Depth to Water(pre-purge): 29.33
	Screened Interval: 23.43 - 33.43	Weather: Clear/Cold	Well Volume (gal) (A*(C-B)): 0.65
	Pump placement: 30.50	Well Condition: Good	Ferrous Iron: 3.73 mg/L

CASING INFO											
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
12/1/20	0655	29.40	.13	100	11.34	6.71	5.73	0.70	9.5	-20	
	0700	29.46	.26	100	12.39	6.26	5.16	0.23	10.1	-37	
	0705	29.50	.39	100	12.61	6.18	4.91	0.11	10.3	-48	
	0710	29.53	.52	100	12.69	6.18	4.90	0.11	10.5	-49	
	0715	29.56	.65	100	12.77	6.17	4.89	0.10	10.6	-50	
	0720	29.59	.78	100	12.88	6.17	4.89	0.10	10.7	-50	

Colorimeter Results

Time	Analyte	Dilution	Result	Units

Conversions	Stabilization Criteria			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

No. Containers/Volume/Type		Preserv.	Filter (Y/N)	Method	Parameter(s)
3	40ml Glass	HCL	N		VOC
3	40ml Glass	HCL	N		MEE
2	40ml Amber	H2SO4	N		TOC
3	40ml Glass	NA	N		CO2
1	200 ml Plastic	NA	N		Anions
1	125ml Plastic	HNO3	N		Arsenic
1	1 Liter Glass	NA	N		DHC/DHB

Sample ID: 03WW01-120120 Sample Time: 0720

1 250ml Amber N VFA

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GROUNDWATER SAMPLE COLLECTION FORM

LOCATION	Site: LHAAP - 58	Location ID: 35AWW01	Date: 12/7/20
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): SS 4"	Unit Casing Volume (gal/lin ft) (A): 0.652	Initial Depth to Water (ft) (B): 44.75
	Total Well Depth (ft) (C): 72.45	Water Column Thickness (ft) (C-B): 27.70	2nd Depth to Water(pre-purge): 44.75
	Screened Interval: 62.50 - 72.50	Weather: CLEAR/COLD	Well Volume (gal) (A*(C-B)): 18.06
	Pump placement: 67.50	Well Condition: GOOD	Ferrous Iron: NA

CASING INFO										
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
12/7/20	0900	44.80	.13	100	15.03	7.41	0.679	0.90	80.1	167	
	0905	44.83	.26	100	15.62	6.70	0.680	0.46	70.5	[redacted]185	
	0910	44.85	.39	100	16.12	6.55	0.681	0.22	65.7	65	
	0915	44.87	.52	100	16.18	6.54	0.681	0.21	65.4	64	
	0920	44.88	.65	100	16.25	6.53	0.681	0.20	64.8	63	
↓	0925	44.89	.78	100	16.33	6.53	0.681	0.20	64.3	62	

Colorimeter Results					No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
Time	Analyte	Dilution	Result	Units		3	40ml Glass	HCL	N		VOC
						1	125ml Plastic	HNO3	N		ARSENIC

Conversions	Stabilization Criteria			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

Sample ID: 35AWW01_120720 Sample Time: 0925

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GROUNDWATER SAMPLE COLLECTION FORM

LOCATION	Site: LHAAP - 58	Location ID: 35AWW05	Date: 12/3/20
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 4"	Unit Casing Volume (gal/lin ft) (A): 0.652	Initial Depth to Water (ft) (B): 46.71
	Total Well Depth (ft) (C): 72.35	Water Column Thickness (ft) (C-B): 25.64	2nd Depth to Water(pre-purge): 46.71
	Screened Interval: 62.85 - 72.50	Weather: Cloudy	Well Volume (gal) (A*(C-B)): 16.72
	Pump placement: 67.50	Well Condition: Good	Ferrous Iron: NA

CASING INFO										
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
12/3/20	0845	46.77	.13	100	16.01	7.04	2.65	0.75	38.1	34	
	0850	46.81	.26	100	16.75	6.23	2.66	0.38	27.5	55	
	0855	46.84	.39	100	17.03	5.80	2.66	0.27	26.8	78	
	0900	46.86	.52	100	17.08	5.79	2.67	0.26	26.5	79	
	0905	46.88	.65	100	17.15	5.78	2.67	0.25	26.2	80	
	0910	46.89	.78	100	17.21	5.77	2.67	0.25	27.9	80	

Colorimeter Results

Time	Analyte	Dilution	Result	Units

Conversions	**Stabilization Criteria**			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
	3	40ml Glass	HCL	N		VOC

Sample ID: 35AWW05_120320 Sample Time: 0910

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GROUNDWATER SAMPLE COLLECTION FORM

LOCATION	Site: LHAAP - 58	Location ID: 35AWW06	Date: 12/1/20
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): SS 4"	Unit Casing Volume (gal/lin ft) (A): 0.652	Initial Depth to Water (ft) (B): 18.55
	Total Well Depth (ft) (C): 30.30	Water Column Thickness (ft) (C-B): 11.75	2nd Depth to Water(pre-purge): 18.55
	Screened Interval: 20.50 - 30.50	Weather: CLEAR / COLD	Well Volume (gal) (A*(C-B)): 7.66
	Pump placement: 25.50	Well Condition: GOOD	Ferrous Iron: 4.05 mg/L

CASING INFO											
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
12/1/20	0955	18.62	.13	100	14.05	6.83	5.45	0.63	303	-15	
	1000	18.68	.26	100	15.41	6.95	5.39	0.23	285	-37	
	1005	18.72	.39	100	16.05	7.02	5.34	0.04	280	-52	
	1010	18.75	.52	100	16.15	7.03	5.33	0.03	279	-53	
	1015	18.77	.65	100	16.23	7.03	5.33	0.03	278	-54	
	1020	18.79	.78	100	16.30	7.03	5.33	0.03	277	-55	

Colorimeter Results

Time	Analyte	Dilution	Result	Units

Conversions	Stabilization Criteria			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

No. Containers	Volume	Type	Preserv.	Filter (Y/N)	Method	Parameter(s)
3	40ml	GLASS	HCL	N		VOC
3	40ml	GLASS	HCL	N		MEE
2	40ml	AMBER	H2SO4	N		TOC
3	40ml	GLASS	NA	N		CO2
1	200ml	PLASTIC	NA	N		ANIONS
1	250ml	AMBER		N		VFA
1	1 Liter	GLASS	NA	N		DHC/DHB

Sample ID: 35AWW06_12D120 Sample Time: 1020

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GROUNDWATER SAMPLE COLLECTION FORM

LOCATION	Site: LHAAP - 58	Location ID: 35AWW08	Date: 12/1/20
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 2"	Unit Casing Volume (gal/lin ft) (A): 0.160	Initial Depth to Water (ft) (B): 28.58
	Total Well Depth (ft) (C): 33.30	Water Column Thickness (ft) (C-B): 4.72	2nd Depth to Water(pre-purge): 28.58
	Screened Interval: 23.35 - 33.35	Weather: CLEAR / COLD	Well Volume (gal) (A*(C-B)): 0.76
	Pump placement: 29.25	Well Condition: GOOD	Ferrous Iron: 2.89 mg/L

CASING INFO										
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	80
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
12/1/20	0755	28.65	.13	100	12.78	6.31	10.3	0.71	67.7	-8	
	0800	28.71	.26	100	14.49	6.15	9.75	0.20	66.5	-15	
	0805	28.75	.39	100	14.87	6.07	9.69	0.09	64.5	-23	
	0810	28.78	.52	100	14.93	6.06	9.68	0.08	64.0	-24	
	0815	28.81	.65	100	14.98	6.05	9.67	0.08	63.6	-24	
	0820	28.84	.78	100	15.03	6.05	9.67	0.08	63.2	-25	

Colorimeter Results

Time	Analyte	Dilution	Result	Units

Conversions	**Stabilization Criteria**			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
	3	40ml Glass	HCL	N		VOC
	3	40ml Glass	HCL	N		M&A
	2	40ml Amber	H2SO4	N		TOC
	3	40ml Glass	NA	N		CO2
	1	200 ml Plastic	NA	N		Anions
	1	125 ml Plastic	HNO3	N		Arsenic
	1	1 Liter Glass	NA	N		DHC/DHB
Sample ID: 35AWW08_120120				Sample Time: 0820		
	1	250ml Amber	H3PO4	N		VFA

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GROUNDWATER SAMPLE COLLECTION FORM

LOCATION	Site: LHAAP - 58	Location ID: 35AWW09	Date: 12/7/20
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 4"	Unit Casing Volume (gal/lin ft) (A): 0.160	Initial Depth to Water (ft) (B): 31.55
	Total Well Depth (ft) (C): 42.08	Water Column Thickness (ft) (C-B): 10.53	2nd Depth to Water(pre-purge): 31.55
	Screened Interval: 27.58 - 42.18	Weather: CLEAR / COOL	Well Volume (gal) (A*(C-B)): 1.68
	Pump placement: 34.88	Well Condition: GOOD	Ferrous Iron: NA

CASING INFO											
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
12/7/20	0945	31.63	.13	100	15.38	6.71	5.67	1.12	33.2	89	
	0950	31.69	.26	100	15.77	6.20	5.75	0.90	24.9	99	
	0955	31.73	.39	100	16.02	5.96	5.96	0.81	18.5	110	
	1000	31.76	.52	100	16.09	5.95	5.97	0.80	18.0	111	
	1005	31.78	.65	100	16.15	5.95	5.98	0.79	17.7	111	
	1010	31.80	.78	100	16.20	5.94	5.98	0.79	17.2	112	

Colorimeter Results

Time	Analyte	Dilution	Result	Units

Conversions	**Stabilization Criteria**			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
	3	40 ml Glass	HCL	N		VOC

Sample ID: 35AWW09_120720 Sample Time: 1010

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GROUNDWATER SAMPLE COLLECTION FORM

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LOCATION	Site: LHAAP - 58		Location ID: 35AWW10		Date: 12/7/20
	Project Name: LHAAP		Project No./Phase: NWO1312.0150		Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro		Water Quality Meter/ID#: U-52 Horiba		PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101		Other Equipment/ID#: NA		Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"		Other Equipment/ID#: NA		PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 2"		Unit Casing Volume (gal/lin ft) (A): 0.160		Initial Depth to Water (ft) (B): 18.65
	Total Well Depth (ft) (C): 33.65		Water Column Thickness (ft) (C-B): 15.00		2nd Depth to Water(pre-purge): 18.65
	Screened Interval: 19.13 - 33.73		Weather: CLEAR / COLD		Well Volume (gal) (A*(C-B)): 2.40
	Pump placement: 26.43		Well Condition: BROKEN HINGE		Ferrous Iron: NA

CASING INFO											
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
12/7/20	0725	18.72	.13	100	16.88	6.01	0.282	2.53	14.1	167	
	0730	18.77	.26	100	17.51	5.33	0.229	2.30	15.6	212	
	0735	18.80	.39	100	18.15	5.12	0.200	2.18	15.2	237	
	0740	18.82	.52	100	18.20	5.11	0.199	2.17	14.8	238	
	0745	18.83	.65	100	18.26	5.10	0.199	2.16	14.5	239	
↓	0750	18.84	.78	100	18.30	5.09	0.199	2.15	14.3	239	

Colorimeter Results					No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
Time	Analyte	Dilution	Result	Units		6	40 ml Glass	HCl	N		VOC

Conversions	Stabilization Criteria			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

Sample ID: 35AWW10_120720 Sample Time: 0750

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GROUNDWATER SAMPLE COLLECTION FORM

LOCATION	Site: LHAAP - 58	Location ID: 35AWW11	Date: 12/1/20
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 2"	Unit Casing Volume (gal/lin ft) (A): 0.160	Initial Depth to Water (ft) (B): 28.95
	Total Well Depth (ft) (C): 37.88	Water Column Thickness (ft) (C-B): 8.93	2nd Depth to Water(pre-purge): 28.95
	Screened Interval: 23.50 - 38.10	Weather: CLEAR / COLD	Well Volume (gal) (A*(C-B)): 1.43
	Pump placement: 30.80	Well Condition: GOOD	Ferrous Iron: 3.89 mg/L

CASING INFO										
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
12/1/20	0850	29.02	.13	100	12.17	6.14	8.41	0.74	27.5	12	
	0855	29.08	.26	100	12.89	5.99	8.37	0.21	24.1	8	
	0900	29.12	.39	100	13.17	5.99	8.41	0.06	22.6	5	
	0905	29.14	.52	100	13.24	5.99	8.42	0.06	22.1	5	
	0910	29.16	.65	100	13.28	5.99	8.43	0.05	21.7	4	
	0915	29.17	.78	100	13.32	5.99	8.43	0.05	21.3	4	

Colorimeter Results				
Time	Analyte	Dilution	Result	Units

Conversions	Stabilization Criteria			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

No. Containers/Volume/Type		Preserv.	Filter (Y/N)	Method	Parameter(s)
6	40ml Glass	HCL	N		VOC
6	40ml Glass	HCL	N		MEE
4	40ml Amber	HCL	N		TOC
6	40ml Glass	NA	N		CO2
2	200ml Plastic	NA	N		Anions
2	250ml Amber	H3PO4	N		VFA
2	1L Amber Glass	NA	N		DHC/DMB

Sample ID: 35AWW11-120120 Sample Time: 0915

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GROUNDWATER SAMPLE COLLECTION FORM

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LOCATION	Site: LHAAP - 58	Location ID: 35AWW12	Date: 12/7/20
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 2"	Unit Casing Volume (gal/lin ft) (A): 0.160	Initial Depth to Water (ft) (B): 29.72
	Total Well Depth (ft) (C): 37.55	Water Column Thickness (ft) (C-B): 7.83	2nd Depth to Water(pre-purge): 29.72
	Screened Interval: 23.01 - 37.61	Weather: CLEAR	Well Volume (gal) (A*(C-B)): 1.25
	Pump placement: 30.31	Well Condition: BROKEN HINGE	Ferrous Iron: NA

CASING INFO											
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
12/7/20	1155	29.80	.13	100	17.33	5.88	1.86	0.80	7.9	169	
	1200	29.86	.26	100	18.17	5.35	1.80	0.33	7.4	190	
	1205	29.90	.39	100	18.67	5.24	1.77	0.13	5.2	200	
	1210	29.93	.52	100	18.75	5.23	1.77	0.13	4.0	201	
	1215	29.96	.65	100	18.83	5.22	1.76	0.12	3.1	201	
	1220	29.98	.78	100	18.90	5.21	1.76	0.12	2.3	202	

Colorimeter Results				
Time	Analyte	Dilution	Result	Units

Conversions	Stabilization Criteria			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
3	40ml GLASS		HCL	N		VOC

Sample ID: 35AWW12_120720 Sample Time: 1220

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GROUNDWATER SAMPLE COLLECTION FORM

LOCATION	Site: LHAAP - 58	Location ID: 35AWW13	Date: 12/7/20
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 2"	Unit Casing Volume (gal/lin ft) (A): 0.160	Initial Depth to Water (ft) (B): 24.61
	Total Well Depth (ft) (C): 40.20	Water Column Thickness (ft) (C-B): 15.59	2nd Depth to Water(pre-purge): 24.61
	Screened Interval: 25.68 - 40.28	Weather: CLEAR/COLD	Well Volume (gal) (A*(C-B)): 2.49
	Pump placement: 32.98	Well Condition: GOOD	Ferrous Iron: NA

CASING INFO										
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
12/7/20	0810	24.69	.13	100	14.91	5.98	1.17	0.85	43.2	224	
	0815	24.75	.26	100	15.62	5.99	1.18	0.40	35.7	223	
	0820	24.79	.39	100	16.38	5.99	1.16	0.22	32.7	218	
	0825	24.81	.52	100	16.46	5.99	1.15	0.21	32.1	217	
	0830	24.83	.65	100	16.55	5.99	1.15	0.21	31.6	217	
	0835	24.85	.78	100	16.61	5.99	1.15	0.20	31.3	216	

Colorimeter Results					No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
Time	Analyte	Dilution	Result	Units		9	40ml Glass	HCl	N		VOC

Conversions	Stabilization Criteria			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

Sample ID: 35AWW13-120720 Sample Time: 0835

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GROUNDWATER SAMPLE COLLECTION FORM

LOCATION	Site: LHAAP - 58	Location ID: 35AWW14	Date: 12/7/20
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 4"	Unit Casing Volume (gal/lin ft) (A): 0.160	Initial Depth to Water (ft) (B): 30.75
	Total Well Depth (ft) (C): 32.35	Water Column Thickness (ft) (C-B): 1.60	2nd Depth to Water(pre-purge): 30.75
	Screened Interval: 17.76 - 32.46	Weather: CLEAR / COLD	Well Volume (gal) (A*(C-B)): 0.25
	Pump placement: NA	Well Condition: GOOD	Ferrous Iron: NA

CASING INFO											
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
12/7/20	0703	30.75	~~0~~ NA	NA							BAILING WELL
12/7/20	0706	32.30	0.5	NA							BAILED 0.5 GALLONS RAN DRY
12/7/20	1230	30.79	NA	NA	17.50	5.75	5.57	8.74	10.3	163	

Colorimeter Results				
Time	Analyte	Dilution	Result	Units

Conversions	Stabilization Criteria			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
3	40ml Glass		HCL	N		VOC
Sample ID: 35AWW14-120720				Sample Time: 1230		

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GROUNDWATER SAMPLE COLLECTION FORM

LOCATION	Site: LHAAP - 58	Location ID: 35AWW15	Date: 12/1/20
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 2"	Unit Casing Volume (gal/lin ft) (A): 0.160	Initial Depth to Water (ft) (B): 17.05
	Total Well Depth (ft) (C): 41.35	Water Column Thickness (ft) (C-B): 24.30	2nd Depth to Water(pre-purge): 17.05
	Screened Interval: 26.78 - 41.48	Weather: Clear/60's	Well Volume (gal) (A*(C-B)): 3.89
	Pump placement: 34.10	Well Condition: Hinge Broken	Ferrous Iron: NA

CASING INFO										
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
12/1/20	1255	17.12	.13	100	21.12	6.76	13.6	0.71	111	74	
	1300	17.18	.26	100	21.51	6.60	13.5	0.63	102	79	
	1305	17.21	.39	100	21.77	6.54	13.5	0.56	97.7	79	
	1310	17.23	.52	100	21.85	6.53	13.5	0.55	97.3	78	
	1315	17.25	.65	100	21.92	6.53	13.5	0.54	96.5	78	
↓	1320	17.26	.78	100	21.98	6.52	13.5	0.54	96.1	78	

Colorimeter Results					No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
Time	Analyte	Dilution	Result	Units		3	40ml Glass	HCl	N		VOC

Conversions	Stabilization Criteria			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

Sample ID: 35AWW15_120120 Sample Time: 1320

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GROUNDWATER SAMPLE COLLECTION FORM

LOCATION	Site: LHAAP - 58	Location ID: 35AWW16	Date: 12/1/20
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 2"	Unit Casing Volume (gal/lin ft) (A): 0.160	Initial Depth to Water (ft) (B): 17.25
	Total Well Depth (ft) (C): 37.36	Water Column Thickness (ft) (C-B): 20.11	2nd Depth to Water(pre-purge): 17.25
	Screened Interval: 22.81 - 37.51	Weather: CLEAR / COOL	Well Volume (gal) (A*(C-B)): 3.22
	Pump placement: 30.16	Well Condition: GOOD	Ferrous Iron: NA

CASING INFO											
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
12/1/20	1215	17.32	.13	100	16.88	6.65	11.9	0.67	106	80	
	1220	17.38	.26	100	17.91	6.56	12.2	0.19	86.5	78	
	1225	17.41	.39	100	18.89	6.55	12.4	0.05	81.8	72	
	1230	17.43	.52	100	18.99	6.54	12.4	0.05	81.3	71	
	1235	17.44	.65	100	19.10	6.54	12.5	0.04	80.7	71	
	1240	17.45	.78	100	19.18	6.54	12.5	0.04	80.4	70	

Colorimeter Results

Time	Analyte	Dilution	Result	Units

No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
	3	40ml GLASS	HCL	N		VOC

Conversions	**Stabilization Criteria**			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

Sample ID: 35AWW16_120120 Sample Time: 1240

bhate ENVIRONMENT INFRASTRUCTURE

GROUNDWATER SAMPLE COLLECTION FORM

LOCATION	Site: LHAAP - 58	Location ID: 35A WW17	Date: 12/1/20
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 2"	Unit Casing Volume (gal/lin ft) (A): 0.160	Initial Depth to Water (ft) (B): 23.12
	Total Well Depth (ft) (C): 42.31	Water Column Thickness (ft) (C-B): 19.19	2nd Depth to Water(pre-purge): 23.12
	Screened Interval: 22.78 - 42.48	Weather: CLEAR / COLD	Well Volume (gal) (A*(C-B)): 3.07
	Pump placement: 32.63	Well Condition: HINGE BROKEN	Ferrous Iron: NA

CASING INFO										
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
12/1/20	1045	23.20	.13	100	13.93	6.88	11.5	1.03	17.8	17	
	1050	23.25	.26	100	15.14	6.50	11.1	0.93	14.5	32	
	1055	23.28	.39	100	15.60	6.39	11.0	0.88	14.4	44	
	1100	23.30	.52	100	15.70	6.38	11.0	0.88	14.3	45	
	1105	23.32	.65	100	15.79	6.37	10.9	0.87	14.2	45	
↓	1110	23.33	.78	100	15.89	6.37	10.9	0.87	14.1	46	

Colorimeter Results					No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
Time	Analyte	Dilution	Result	Units		3	40ml Glass	HCl	N		VOC

Conversions	Stabilization Criteria			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

Sample ID: 35A WW17-120120 Sample Time: 1110

bhate ENVIRONMENT INFRASTRUCTURE

GROUNDWATER SAMPLE COLLECTION FORM

LOCATION	Site: LHAAP - 58	Location ID: 35AWW18	Date: 12/1/20
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 2"	Unit Casing Volume (gal/lin ft) (A): 0.160	Initial Depth to Water (ft) (B): 23.95
	Total Well Depth (ft) (C): 42.11	Water Column Thickness (ft) (C-B): 18.16	2nd Depth to Water(pre-purge): 23.95
	Screened Interval: 27.48 - 42.18	Weather: CLEAR/COLD	Well Volume (gal) (A*(C-B)): 2.91
	Pump placement: 34.83	Well Condition: GOOD	Ferrous Iron: NA

CASING INFO											
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
12/1/20	1130	24.03	.13	100	16.05	6.77	10.2	1.09	69.8	61	
↓	1135	24.09	.26	100	16.45	6.70	10.2	1.03	63.5	63	
	1140	24.13	.39	100	16.73	6.65	10.1	0.99	60.9	63	
	1145	24.15	.52	100	16.82	6.64	10.1	0.98	60.3	64	
	1150	24.17	.65	100	16.89	6.63	10.0	0.97	59.9	64	
↓	1155	24.19	.78	100	16.95	6.63	10.0	0.97	59.5	64	

Colorimeter Results

Time	Analyte	Dilution	Result	Units

Conversions	**Stabilization Criteria**			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
	6	40ml GLASS	HCL	N		VOC

Sample ID: 35AWW18-120120 Sample Time: 1155

bhate ENVIRONMENT INFRASTRUCTURE

GROUNDWATER SAMPLE COLLECTION FORM

LOCATION	Site: LHAAP - 58	Location ID: 35HWW19	Date: 12/3/20
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 2"	Unit Casing Volume (gal/lin ft) (A): 0.160	Initial Depth to Water (ft) (B): 24.63
	Total Well Depth (ft) (C): 32.42	Water Column Thickness (ft) (C-B): 7.79	2nd Depth to Water(pre-purge): 24.63
	Screened Interval: 17.29 - 31.39	Weather: Cloudy	Well Volume (gal) (A*(C-B)): 1.25
	Pump placement: 25.25	Well Condition: Broken Hinge	Ferrous Iron: 2.47 mg/L

CASING INFO											
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
12/3/20	1020	24.70	.13	100	15.97	6.63	4.13	0.79	5.6	31	
	1025	24.76	.26	100	16.59	5.79	4.10	0.34	3.2	52	
	1030	24.80	.39	100	17.01	5.66	4.02	0.12	3.0	62	
	1035	24.82	.52	100	17.10	5.65	4.01	0.12	3.6	63	
	1040	24.84	.65	100	17.18	5.64	4.01	0.11	4.0	64	
	1045	24.86	.78	100	17.26	5.64	4.00	0.11	4.5	65	

Colorimeter Results

Time	Analyte	Dilution	Result	Units

Conversions	Stabilization Criteria			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

No. Containers	Volume/Type	Preserv.	Filter (Y/N)	Method	Parameter(s)
3	40ml Glass	HCL	N		VOC
3	40ml Glass	HCL	N		MEE
2	40ml Glass	NA	N		CO2
2	40ml Amber	H2SO4	N		TOC
1	250ml Amber	H3PO4	N		VFA
1	200ml Plastic	NA	N		Anions
1	1 Liter Glass	NA	N		DHC/DHP

Sample ID: 35AWW19-120320 Sample Time: 1045

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GROUNDWATER SAMPLE COLLECTION FORM

LOCATION	Site: LHAAP - 58	Location ID: 35AWW20	Date: 12/3/20
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 2"	Unit Casing Volume (gal/lin ft) (A): 0.160	Initial Depth to Water (ft) (B): 18.58
	Total Well Depth (ft) (C): 42.88	Water Column Thickness (ft) (C-B): 24.30	2nd Depth to Water(pre-purge): 18.58
	Screened Interval: 21.42 - 42.84	Weather: Cloudy / Drizzle	Well Volume (gal) (A*(C-B)): 3.89
	Pump placement: 28.77	Well Condition: Good	Ferrous Iron: 2.37 mg/L

CASING INFO											
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
12/3/20	0700	18.65	.13	100	15.98	6.22	5.62	1.09	10.2	195	
	0705	18.71	.26	100	16.89	6.30	5.35	0.84	8.0	137	
	0710	18.75	.39	100	17.51	6.36	5.16	0.63	7.3	97	
	0715	18.77	.52	100	17.57	6.36	5.15	0.62	6.4	96	
	0720	18.79	.65	100	17.65	6.37	5.14	0.62	5.8	95	
	0725	18.80	.78	100	17.72	6.37	5.14	0.61	5.1	94	

Colorimeter Results

Time	Analyte	Dilution	Result	Units

Conversions	Stabilization Criteria			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
	3	40ml Glass	HCL	N		VOC
	3	40ml Glass	HCL	N		MEE
	2	40ml Glass	N	N		CO2
	2	40ml Amber	H2SO4	N		TOC
	1	250 ml Amber	H3PO4	N		VFA
	1	200 ml Plastic	NA	N		Anions
	1	1 Liter Glass	NA	N		DHC/DHB

Sample ID: 35AWW20_120320 Sample Time: 0725

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GROUNDWATER SAMPLE COLLECTION FORM

LOCATION	Site: LHAAP - 58	Location ID: 35AWW21	Date: 12/7/20
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 2"	Unit Casing Volume (gal/lin ft) (A): 0.160	Initial Depth to Water (ft) (B): 33.33
	Total Well Depth (ft) (C): 42.81	Water Column Thickness (ft) (C-B): 9.48	2nd Depth to Water(pre-purge): 33.33
	Screened Interval: 28.14 - 42.84	Weather: CLEAR	Well Volume (gal) (A*(C-B)): 1.52
	Pump placement: 35.49	Well Condition: BROKEN HINGE	Ferrous Iron: NA

CASING INFO											
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
12/7/20	1030	33.40	.13	100	15.38	5.63	2.67	1.03	17.8	134	
	1035	33.46	.26	100	16.31	5.03	2.65	0.73	14.0	159	
	1040	33.50	.39	100	17.40	4.99	2.64	0.41	10.5	185	
	1045	33.53	.52	100	17.65	5.05	2.63	0.32	6.3	191	
	1050	33.55	.65	100	17.74	5.06	2.63	0.32	5.7	192	
	1055	33.57	.78	100	17.82	5.06	2.62	0.31	5.0	192	
	1100	33.59	.91	100	17.89	5.06	2.62	0.31	4.4	193	

Colorimeter Results

Time	Analyte	Dilution	Result	Units

Conversions	**Stabilization Criteria**			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
	3	40ml GLASS	HCL	N		VOC

Sample ID: 35AWW21_120720 Sample Time: 1100

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GROUNDWATER SAMPLE COLLECTION FORM

LOCATION	Site: LHAAP - 58	Location ID: 35AWW22	Date: 12/7/20
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 2"	Unit Casing Volume (gal/lin ft) (A): 0.160	Initial Depth to Water (ft) (B): 32.27
	Total Well Depth (ft) (C): 37.68	Water Column Thickness (ft) (C-B): 5.41	2nd Depth to Water(pre-purge): 32.27
	Screened Interval: 23.28 - 37.78	Weather: CLEAR / COOL	Well Volume (gal) (A*(C-B)): 0.87
	Pump placement: 33.00	Well Condition: BROKEN HINGE	Ferrous Iron: NA

CASING INFO										
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
12/7/20	1115	32.35	.13	100	16.09	5.81	8.55	0.98	16.1	188	
	1120	32.41	.26	100	16.64	5.63	8.52	0.65	11.5	187	
	1125	32.45	.39	100	16.91	5.56	8.50	0.35	8.4	186	
	1130	32.48	.52	100	16.99	5.55	8.49	0.35	7.6	186	
	1135	32.51	.65	100	17.08	5.55	8.49	0.34	7.0	185	
↓	1140	32.53	.78	100	17.16	5.55	8.49	0.34	6.7	185	

Colorimeter Results					No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
Time	Analyte	Dilution	Result	Units		3	40ml Glass	HCl	N		VOC

Conversions	Stabilization Criteria			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

Sample ID: 35AWW22_120720 Sample Time: 1140

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GROUNDWATER SAMPLE COLLECTION FORM

LOCATION	Site: LHAAP - 58	Location ID: 35AWW23	Date: 12/3/20
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 2"	Unit Casing Volume (gal/lin ft) (A): 0.160	Initial Depth to Water (ft) (B): 22.55
	Total Well Depth (ft) (C): 43.72	Water Column Thickness (ft) (C-B): 21.17	2nd Depth to Water(pre-purge): 22.55
	Screened Interval: 28.50 - 43.50	Weather: Cloudy	Well Volume (gal) (A*(C-B)): 3.39
	Pump placement: 36.00	Well Condition: Good	Ferrous Iron: 2.91 mg/L

CASING INFO											
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
12/3/20	0930	22.62	.13	100	15.21	6.40	4.78	0.67	13.4	-12	
	0935	22.68	.26	100	15.71	6.35	4.72	0.18	12.3	-31	
	0940	22.72	.39	100	15.89	6.33	4.68	0.08	12.1	-39	
	0945	22.74	.52	100	15.95	6.32	4.67	0.08	11.8	-40	
	0950	22.76	.65	100	16.02	6.32	4.67	0.07	11.6	-41	
	0955	22.77	.78	100	16.07	6.32	4.67	0.07	11.5	-41	

Colorimeter Results

Time	Analyte	Dilution	Result	Units

Conversions	**Stabilization Criteria**			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

No. Containers/Volume/Type		Preserv.	Filter (Y/N)	Method	Parameter(s)
3	40ml Glass	HCL	N		VOC
3	40ml Glass	HCL	N		MEE
2	40ml Glass	NA	N		CO2
2	40 ml Glass	H2SO4	N		TOC
1	250 ml Amber	H3PO4	N		VFA
1	200 ml Plastic	NA	N		Anions
1	1 Liter Glass	NA	N		DHC/DHB

Sample ID: 35AWW23_120320 Sample Time: 0955

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GROUNDWATER SAMPLE COLLECTION FORM

Page 1 of 1

LOCATION	Site: LHAAP - 58		Location ID: 35AWW24		Date: 12/3/20
	Project Name: LHAAP		Project No./Phase: NWO1312.0150		Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro		Water Quality Meter/ID#: U-52 Horiba		PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101		Other Equipment/ID#: NA		Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"		Other Equipment/ID#: NA		PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 2"		Unit Casing Volume (gal/lin ft) (A): 0.160		Initial Depth to Water (ft) (B): 23.85
	Total Well Depth (ft) (C): 35.00		Water Column Thickness (ft) (C-B): 11.15		2nd Depth to Water(pre-purge): 23.85
	Screened Interval: 24.68 - 34.68		Weather: Cloudy		Well Volume (gal) (A*(C-B)): 1.78
	Pump placement: 29.68		Well Condition: GOOD		Ferrous Iron: NA

CASING INFO										
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
12/3/20	1115	23.92	.13	100	16.47	5.79	0.566	0.85	131	94	
	1120	23.96	.26	100	16.95	5.01	0.500	0.33	118	136	
	1125	24.00	.39	100	17.39	4.90	0.491	0.18	111	153	
	1130	24.03	.52	100	17.47	4.89	0.490	0.18	110	154	
	1135	24.05	.65	100	17.56	4.88	0.490	0.18	110	155	
	1140	24.07	.78	100	17.65	4.88	0.490	0.17	109	156	

Colorimeter Results				
Time	Analyte	Dilution	Result	Units

Conversions	Stabilization Criteria			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
	9	40ml Glass	HCL	N		VOC

Sample ID: 35AWW24-120320 Sample Time: 1140

bhate ENVIRONMENT INFRASTRUCTURE

GROUNDWATER SAMPLE COLLECTION FORM

LOCATION	Site: LHAAP - 58	Location ID: LHSMW04	Date: 12/3/20
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 4"	Unit Casing Volume (gal/lin ft) (A): 0.652	Initial Depth to Water (ft) (B): DRY
	Total Well Depth (ft) (C): 31.00	Water Column Thickness (ft) (C-B): NA	2nd Depth to Water(pre-purge): DRY
	Screened Interval: 21.14-31.14	Weather: CLOUDY	Well Volume (gal) (A*(C-B)): NA
	Pump placement: NA	Well Condition: GOOD	Ferrous Iron: NA

CASING INFO										
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)

DRY WELL

Colorimeter Results

Time	Analyte	Dilution	Result	Units

Conversions	**Stabilization Criteria**			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)

Sample ID: Sample Time:

bhate ENVIRONMENT INFRASTRUCTURE

GROUNDWATER SAMPLE COLLECTION FORM

LOCATION	Site: LHAAP - 58	Location ID: LHSMW06	Date: 12/3/20
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 4"	Unit Casing Volume (gal/lin ft) (A): 0.652	Initial Depth to Water (ft) (B): 18.53
	Total Well Depth (ft) (C): 23.50	Water Column Thickness (ft) (C-B): 4.97	2nd Depth to Water(pre-purge): 18.53
	Screened Interval: 13.53 - 23.53	Weather: Cloudy	Well Volume (gal) (A*(C-B)): 3.24
	Pump placement: 19.25	Well Condition: Good	Ferrous Iron: NA

CASING INFO											
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
12/3/20	1205	18.60	.13	100	16.20	6.22	3.78	0.79	1.2	133	
	1210	18.66	.26	100	16.63	6.51	3.26	0.23	0.6	88	
	1215	18.71	.39	100	16.75	6.60	3.08	0.17	0.0	77	
	1220	18.75	.52	100	16.82	6.61	3.07	0.16	0.0	76	
	1225	18.78	.65	100	16.87	6.61	3.07	0.16	0.0	75	
↓	1230	18.81	.78	100	16.92	6.61	3.06	0.16	0.0	75	

Colorimeter Results

Time	Analyte	Dilution	Result	Units

Conversions	**Stabilization Criteria**			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
3	40ml Glass		HCL	N		VOC
1	125ml Plastic		HNO3	N		ARSENIC

Sample ID: LHSMW06-120320 Sample Time: 1230

bhate ENVIRONMENT INFRASTRUCTURE

GROUNDWATER SAMPLE COLLECTION FORM

LOCATION	Site: LHAAP - 58	Location ID: LHSMW07	Date: 12/3/20
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 4"	Unit Casing Volume (gal/lin ft) (A): 0.652	Initial Depth to Water (ft) (B): 17.88
	Total Well Depth (ft) (C): 30.41	Water Column Thickness (ft) (C-B): 12.53	2nd Depth to Water(pre-purge): 17.88
	Screened Interval: 19.73 - 29.73	Weather: OVERCAST	Well Volume (gal) (A*(C-B)): 8.17
	Pump placement: 24.73	Well Condition: GOOD	Ferrous Iron: 1.79 mg/L

CASING INFO										
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
12/3/20	0750	17.95	.13	100	14.89	7.23	9.98	0.69	3.7	40	
	0755	18.01	.26	100	15.68	6.67	9.93	0.28	1.9	23	
	0800	18.05	.39	100	15.77	6.55	9.89	0.15	1.0	11	
	0805	18.08	.52	100	15.84	6.54	9.88	0.14	0.6	11	
	0810	18.10	.65	100	15.87	6.54	9.87	0.14	0.0	10	
↓	0815	18.11	.78	100	15.90	6.53	9.87	0.14	0.0	10	

Colorimeter Results

Time	Analyte	Dilution	Result	Units

Conversions	**Stabilization Criteria**			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

No. Containers	Volume/Type	Preserv.	Filter (Y/N)	Method	Parameter(s)
3	40ml GLASS	HCL	N		VOC
3	40ml GLASS	HCL	N		MAA
2	40ml GLASS	NA	N		CO2
2	40 ml AMBER	H_2SO_4	N		TOC
1	250 ml AMBER	H_3PO_4	N		VFA
1	200ml PLASTIC	NA	N		ANIONS
1	1 LITER GLASS	NA	N		DHC/DHB

Sample ID: LHSMW07_120320 Sample Time: 0815

bhate ENVIRONMENT INFRASTRUCTURE

GROUNDWATER SAMPLE COLLECTION FORM

LOCATION	Site: LHAAP - 58	Location ID: 03WW01	Date: 6/2/21
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 2"	Unit Casing Volume (gal/lin ft) (A): 0.160	Initial Depth to Water (ft) (B): 28.88
	Total Well Depth (ft) (C): 33.33	Water Column Thickness (ft) (C-B): 4.48	2nd Depth to Water(pre-purge): 28.88
	Screened Interval: 21.53 - 31.53	Weather: CLEAR	Well Volume (gal) (A*(C-B)): 0.72
	Pump placement: 30.00	Well Condition: GOOD	Ferrous Iron: 3.77 mg/L

CASING INFO										
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
6/2/21	0740	28.95	.13	100	21.23	6.44	5.50	0.75	175	-58	
	0745	29.01	.26	100	21.08	6.30	5.30	0.40	163	-90	
	0750	29.05	.39	100	21.05	6.26	5.25	0.29	158	-97	
	0755	29.08	.52	100	21.03	6.25	5.24	0.28	157	-98	
	0800	29.11	.65	100	21.01	6.25	5.24	0.27	157	-199	
	0805	29.13	.78	100	20.98	6.25	5.24	0.27	156	-99	

Colorimeter Results

Time	Analyte	Dilution	Result	Units

Conversions	Stabilization Criteria			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
	3	40ml Glass	HCL	N		VOC
	3	40ml Glass	HCL	N		MAA
	2	40ml Amber	H2SO4	N		TOC
	2	40ml Glass	NA	N		CO2
	1	200ml Plastic	NA	N		Anions
	1	250ml Amber	H3PO4	N		VFA
	1	120ml Plastic	HNO3	N		Arsenic
Sample ID: 03WW01_060221				Sample Time: 0805		
	1	1 Liter Glass	NA	N		DHC/DHB

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GROUNDWATER SAMPLE COLLECTION FORM

LOCATION	Site: LHAAP - 58	Location ID: 35AWW01	Date: 6/1/21
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): SS 4"	Unit Casing Volume (gal/lin ft) (A): 0.652	Initial Depth to Water (ft) (B): 44.50
	Total Well Depth (ft) (C): 72.62	Water Column Thickness (ft) (C-B): 28.12	2nd Depth to Water(pre-purge): 44.50
	Screened Interval: 62.69 - 72.69	Weather: Cloudy	Well Volume (gal) (A*(C-B)): 18.33
	Pump placement: 67.69	Well Condition: Good	Ferrous Iron: NA

CASING INFO										
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
6/1/21	0720	44.56	.13	100	22.84	7.39	0.772	0.88	97.3	15	
	0725	44.60	.26	100	22.30	6.08	0.770	0.55	85.2	40	
	0730	44.63	.39	100	22.18	5.70	0.753	0.18	81.7	75	
	0735	44.65	.52	100	22.12	5.69	0.753	0.17	81.3	76	
	0740	44.66	.65	100	22.07	5.68	0.752	0.17	80.6	77	
	0745	44.67	.78	100	22.03	5.68	0.752	0.17	80.1	78	

Colorimeter Results

Time	Analyte	Dilution	Result	Units

Conversions	**Stabilization Criteria**			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
6	40ml Glass		HCl	N		VOC
2	120ml Plastic		HNO3	N		ARSENIC

Sample ID: 35AWW01_060121 Sample Time: 0745

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GROUNDWATER SAMPLE COLLECTION FORM

Page 1 of 1

LOCATION	Site: LHAAP - 58	Location ID: 35AWW05	Date: 6/2/21
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 4"	Unit Casing Volume (gal/lin ft) (A): 0.652	Initial Depth to Water (ft) (B): 46.25
	Total Well Depth (ft) (C): 72.08	Water Column Thickness (ft) (C-B): 25.83	2nd Depth to Water(pre-purge): 46.25
	Screened Interval: 62.15 - 72.15	Weather: CLEAR	Well Volume (gal) (A*(C-B)): 16.84
	Pump placement: 67.15	Well Condition: GOOD	Ferrous Iron: NA

CASING INFO										
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
6/2/21	1105	46.31	.13	100	22.90	7.02	3.40	0.74	22.5	.6	
	1110	46.36	.26	100	22.81	5.88	2.83	0.20	22.2	21	
	1115	46.39	.39	100	22.80	5.51	2.76	0.06	21.6	50	
	1120	46.41	.52	100	22.78	5.50	2.75	0.06	21.1	51	
	1125	46.43	.65	100	22.76	5.49	2.75	0.05	20.7	51	
	1130	46.44	.78	100	22.75	5.48	2.75	0.05	20.3	52	

Colorimeter Results

Time	Analyte	Dilution	Result	Units

No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
	3	40ml Glass	HCL	N		VOC

Conversions	Stabilization Criteria			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

Sample ID: 35AWW05_060221 Sample Time: 1130

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GROUNDWATER SAMPLE COLLECTION FORM

Page 1 of 1

LOCATION	Site: LHAAP - 58		Location ID: 35AWW06		Date: 6/3/21
	Project Name: LHAAP		Project No./Phase: NWO1312.0150		Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro		Water Quality Meter/ID#: U-52 Horiba		PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101		Other Equipment/ID#: NA		Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"		Other Equipment/ID#: NA		PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 4"		Unit Casing Volume (gal/lin ft) (A): 0.652		Initial Depth to Water (ft) (B): 18.16
	Total Well Depth (ft) (C): 30.30		Water Column Thickness (ft) (C-B): 12.14		2nd Depth to Water(pre-purge): 18.16
	Screened Interval: 19.05 - 29.05		Weather: CLEAR		Well Volume (gal) (A*(C-B)): 7.92
	Pump placement: 24.05		Well Condition: GOOD		Ferrous Iron: 4.31 mg/L

CASING INFO										
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
6/3/21	1015	18.23	.13	100	22.70	6.81	5.15	0.65	331	14	
	1020	18.28	.26	100	22.10	6.70	5.17	0.20	320	24	
	1025	18.31	.39	100	21.88	6.53	5.19	0.04	313	27	
	1030	18.33	.52	100	21.83	6.52	5.19	0.04	313	28	
	1035	18.35	.65	100	21.76	6.51	5.19	0.03	314	29	
	1040	18.36	.78	100	21.72	6.50	5.19	0.03	313	29	

Colorimeter Results

Time	Analyte	Dilution	Result	Units

Conversions	Stabilization Criteria			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

No. Containers	Volume/Type	Preserv.	Filter (Y/N)	Method	Parameter(s)
3	40 ml Glass	HCl			VOC
3	40 ml Glass	HCl			MEE
2	40 ml Amber	H2SO4			TOC
2	40 ml Glass	NA			CO2
1	200 ml Plastic	NA			Anions
1	250 ml Amber	H3PO4			VFA
1	1 Liter Glass	NA			DHC/DHB

Sample ID: 35AWW06_060321 Sample Time: 1040

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GROUNDWATER SAMPLE COLLECTION FORM

LOCATION	Site: LHAAP - 58	Location ID: 35AWW08	Date: 6/2/21
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 2"	Unit Casing Volume (gal/lin ft) (A): 0.160	Initial Depth to Water (ft) (B): 28.28
	Total Well Depth (ft) (C): 33.33	Water Column Thickness (ft) (C-B): 5.05	2nd Depth to Water(pre-purge): 28.28
	Screened Interval: 21.83 - 31.83	Weather: CLEAR	Well Volume (gal) (A*(C-B)): 0.81
	Pump placement: 30.00	Well Condition: GOOD	Ferrous Iron: 4.03 mg/L

CASING INFO											
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
6/2/21	0830	28.35	.13	100	21.67	6.59	9.69	0.70	8.6	-116	
	0835	28.41	.26	100	21.58	6.61	9.53	0.20	5.5	-131	
	0840	28.45	.39	100	21.49	6.63	9.31	0.05	5.0	-142	
	0845	28.48	.52	100	21.45	6.64	9.30	0.05	4.5	-143	
	0850	28.51	.65	100	21.41	6.64	9.29	0.04	3.9	-143	
	0855	28.53	.78	100	21.38	6.64	9.29	0.04	3.2	-144	

Colorimeter Results

Time	Analyte	Dilution	Result	Units

Conversions	Stabilization Criteria			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
	3	40ml Glass	HCl	N		VOC
	3	40ml Glass	HCl	N		MEE
	2	40ml Amber	H2SO4	N		TOC
	2	40ml Glass	NA	N		CO2
	1	200ml Plastic	NA	N		Anions
	1	250ml Amber	H3PO4	N		VFA
	1	120ml Plastic	HNO3	N		Arsenic
Sample ID: 35AWW08_060221				Sample Time: 0855		
	1	1 Liter Amber	NA	N		DHC/DHB

bhate ENVIRONMENT INFRASTRUCTURE

GROUNDWATER SAMPLE COLLECTION FORM

LOCATION	Site: LHAAP - 58	Location ID: 35AWW09	Date: 6/2/21
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 2"	Unit Casing Volume (gal/lin ft) (A): 0.160	Initial Depth to Water (ft) (B): 30.88
	Total Well Depth (ft) (C): 42.12	Water Column Thickness (ft) (C-B): 11.24	2nd Depth to Water(pre-purge): 30.88
	Screened Interval: 26.69 - 41.29	Weather: CLEAR	Well Volume (gal) (A*(C-B)): 1.83
	Pump placement: 33.99	Well Condition: GOOD	Ferrous Iron: 0.48 mg/L

CASING INFO											
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
6/2/21	0645	30.95	.13	100	22.01	5.91	5.55	0.95	56.5	199	
	0650	30.01	.26	100	21.49	5.71	5.60	0.78	48.8	218	
	0655	31.05	.39	100	21.23	5.59	5.72	0.50	44.7	253	
	0700	31.08	.52	100	21.17	5.58	5.73	0.49	44.1	254	
	0705	31.10	.65	100	21.12	5.58	5.74	0.48	43.6	255	
	0710	31.12	.78	100	21.08	5.57	5.74	0.47	43.2	256	

Colorimeter Results

Time	Analyte	Dilution	Result	Units

Conversions	Stabilization Criteria			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

No. Containers/Volume/Type		Preserv.	Filter (Y/N)	Method	Parameter(s)
6	40ml Glass	HCL	N		VOC
6	40ml Glass	HCL	N		MEE
4	40ml Amber	H2SO4	N		TOC
4	40ml Glass	NA	N		CO2
2	200ml Plastic	NA	N		Anions
2	120ml Plastic	HNO3	N		Arsenic
1	1 Liter Glass	NA	N		DHC/DHB
Sample ID: 35AWW09-060221			Sample Time: 0710		
2	250 ml Amber	H3PO4	N		VFA

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GROUNDWATER SAMPLE COLLECTION FORM

LOCATION	Site: LHAAP - 58	Location ID: 35AWW10	Date: 6/1/21
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 2"	Unit Casing Volume (gal/lin ft) (A): 0.160	Initial Depth to Water (ft) (B): 15.55
	Total Well Depth (ft) (C): 33.65	Water Column Thickness (ft) (C-B): 18.10	2nd Depth to Water(pre-purge): 15.55
	Screened Interval: 18.16 - 32.76	Weather: Cloudy	Well Volume (gal) (A*(C-B)): 2.90
	Pump placement: 25.46	Well Condition: BROKEN HINGE	Ferrous Iron: NA

CASING INFO										
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
6/1/21	0845	15.62	.13	100	23.90	6.38	0.297	2.27	19.1	135	
↓	0850	15.67	.26	100	23.58	5.95	0.282	2.12	10.5	163	
	0855	15.70	.39	100	23.59	5.81	0.279	2.03	8.8	175	
	0900	15.72	.52	100	23.61	5.81	0.278	2.01	7.7	176	
	0905	15.73	.65	100	23.62	5.80	0.278	1.99	6.8	177	
↓	0910	15.74	.78	100	23.63	5.80	0.278	1.97	6.4	177	

Colorimeter Results					No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
Time	Analyte	Dilution	Result	Units		9	40ml Glass	HCl	N		VOC

Conversions	Stabilization Criteria			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

Sample ID: 35AWW10_060121 Sample Time: 0910

bhate ENVIRONMENT INFRASTRUCTURE

GROUNDWATER SAMPLE COLLECTION FORM

LOCATION	Site: LHAAP - 58	Location ID: 35AWW11	Date: 6/2/21
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 2"	Unit Casing Volume (gal/lin ft) (A): 0.160	Initial Depth to Water (ft) (B): 28.30
	Total Well Depth (ft) (C): 37.88	Water Column Thickness (ft) (C-B): 9.58	2nd Depth to Water(pre-purge): 28.30
	Screened Interval: 22.24 - 36.84	Weather: CLEAR	Well Volume (gal) (A*(C-B)): 1.53
	Pump placement: 29.54	Well Condition: GOOD	Ferrous Iron: 4.21 mg/L

CASING INFO											
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
6/2/21	0920	28.37	.13	100	22.11	6.27	6.50	0.80	7.9	-39	
	0925	28.43	.26	100	21.65	6.10	6.45	0.24	6.8	-26	
	0930	28.47	.39	100	21.60	5.98	6.49	0.07	6.1	-27	
	0935	28.50	.52	100	21.56	5.97	6.50	0.07	5.5	-27	
	0940	28.53	.65	100	21.52	5.97	6.51	0.06	4.9	-28	
	0945	28.56	.78	100	21.48	5.96	6.51	0.06	4.3	-28	

Colorimeter Results

Time	Analyte	Dilution	Result	Units

Conversions	**Stabilization Criteria**			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
3	40ml Glass		HCL	N		VOC
3	40ml Glass		HCL	N		MEE
2	40ml Amber		H2SO4	N		TOC
2	40ml Glass		NA	N		CO2
1	200ml Plastic		NA	N		Anions
1	250ml Amber		H3PO4	N		VFA
1	1 Liter Glass		NA	N		DHC/DHB

Sample ID: 35AWW11-060221 Sample Time: 0945

bhate ENVIRONMENT INFRASTRUCTURE

GROUNDWATER SAMPLE COLLECTION FORM

LOCATION	Site: LHAAP - 58	Location ID: 35AWW12	Date: 6/2/21
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 2"	Unit Casing Volume (gal/lin ft) (A): 0.160	Initial Depth to Water (ft) (B): 28.00
	Total Well Depth (ft) (C): 37.55	Water Column Thickness (ft) (C-B): 9.55	2nd Depth to Water(pre-purge): 28.00
	Screened Interval: 22.17 - 36.77	Weather: CLEAR	Well Volume (gal) (A*(C-B)): 1.53
	Pump placement: 29.47	Well Condition: BROKEN HINGE	Ferrous Iron: NA

CASING INFO											
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
6/2/21	1245	28.08	.13	100	24.36	6.18	2.10	0.92	5.3	58	
↓	1250	28.14	.26	100	23.67	5.70	2.06	0.77	4.0	115	
	1255	28.19	.39	100	23.48	5.45	2.03	0.71	2.9	153	
	1300	28.22	.52	100	23.43	5.44	2.02	0.70	1.4	154	
	1305	28.25	.65	100	23.37	5.43	2.02	0.69	0.7	155	
↓	1310	28.28	.78	100	23.32	5.43	2.02	0.68	0.0	156	

Colorimeter Results

Time	Analyte	Dilution	Result	Units

Conversions	**Stabilization Criteria**			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
	3	40ml Glass	HCL	N		VOC

Sample ID: 35AWW12-060221 Sample Time: 1310

bhate ENVIRONMENT INFRASTRUCTURE

GROUNDWATER SAMPLE COLLECTION FORM

LOCATION	Site: LHAAP - 58	Location ID: 35AWW13	Date: 6/1/21
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 2"	Unit Casing Volume (gal/lin ft) (A): 0.160	Initial Depth to Water (ft) (B): 22.95
	Total Well Depth (ft) (C): 39.28	Water Column Thickness (ft) (C-B): 16.33	2nd Depth to Water(pre-purge): 22.95
	Screened Interval: 24.72 - 39.32	Weather: Cloudy	Well Volume (gal) (A*(C-B)): 2.61
	Pump placement: 32.02	Well Condition: Good	Ferrous Iron: NA

CASING INFO											
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
6/1/21	0805	23.02	.13	100	23.33	6.41	1.31	0.73	79.7	82	
	0810	23.08	.26	100	23.50	6.08	1.39	0.33	73.5	122	
	0815	23.12	.39	100	23.58	5.95	1.43	0.12	69.9	151	
	0820	23.15	.52	100	23.64	5.94	1.44	0.12	69.4	152	
	0825	23.17	.65	100	23.69	5.93	1.44	0.11	68.8	153	
	0830	23.19	.78	100	23.72	5.93	1.45	0.11	68.3	154	

Colorimeter Results

Time	Analyte	Dilution	Result	Units

Conversions	Stabilization Criteria			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
	3	40ml Glass	HCL	N		VOC

Sample ID: 35AWW13_060121 Sample Time: 0830

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GROUNDWATER SAMPLE COLLECTION FORM

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LOCATION	Site: LHAAP - 58	Location ID: 35BWW14	Date: 6/1/21
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 2"	Unit Casing Volume (gal/lin ft) (A): 0.16	Initial Depth to Water (ft) (B): 27.80
	Total Well Depth (ft) (C): 32.28	Water Column Thickness (ft) (C-B): 4.48	2nd Depth to Water(pre-purge): 27.80
	Screened Interval: 17.06-31.76	Weather: CLOUDY	Well Volume (gal) (A*(C-B)): 0.72
	Pump placement: NA BAILED WELL	Well Condition: GOOD	Ferrous Iron: NA

CASING INFO										
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
6/1/21	0657	27.80	NA	NA							BAILING WELL
6/1/21	0700	32.20	.75	NA							BAILED .75 GALLONS RAN DRY
6/1/21	1300	27.82	NA	NA	22.50	5.81	0.851	8.39	16.3	88	

Colorimeter Results

Time	Analyte	Dilution	Result	Units

No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
	3	40 ml Glass	HCL	N		VOC

Conversions	Stabilization Criteria			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

Sample ID: 35BWW14-06D121 Sample Time: 1300

bhate ENVIRONMENT INFRASTRUCTURE

GROUNDWATER SAMPLE COLLECTION FORM

LOCATION	Site: LHAAP - 58	Location ID: 35AWW15	Date: 6/1/21
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 2"	Unit Casing Volume (gal/lin ft) (A): 0.160	Initial Depth to Water (ft) (B): 16.95
	Total Well Depth (ft) (C): 41.30	Water Column Thickness (ft) (C-B): 24.35	2nd Depth to Water(pre-purge): 16.95
	Screened Interval: 25.67-40.37	Weather: Cloudy	Well Volume (gal) (A*(C-B)): 3.90
	Pump placement: 33.02	Well Condition: Broken Hinge	Ferrous Iron: NA

CASING INFO										
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
6/1/21	0930	17.02	.13	100	22.75	6.55	4.59	0.77	318	113	
	0935	17.08	.26	100	22.51	6.12	5.60	0.35	305	145	
	0940	17.12	.39	100	22.37	5.95	6.03	0.21	300	157	
	0945	17.14	.52	100	22.33	5.94	6.04	0.21	299	158	
	0950	17.16	.65	100	22.30	5.94	6.05	0.20	298	158	
	0955	17.17	.78	100	22.27	5.93	6.05	0.20	298	159	

Colorimeter Results

Time	Analyte	Dilution	Result	Units

Conversions	Stabilization Criteria			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
	3	40 ml Glass	HCL	N		VOC

Sample ID: 35AWW15.060121 Sample Time: 0955

bhate ENVIRONMENT INFRASTRUCTURE

GROUNDWATER SAMPLE COLLECTION FORM

LOCATION	Site: LHAAP - 58			Location ID: 35AWW16				Date: 6/1/21			
	Project Name: LHAAP			Project No./Phase: NWO1312.0150				Recorded By: Scott Beesinger			
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro			Water Quality Meter/ID#: U-52 Horiba				PID Type/ID#: NA			
	Water Level Indicator Type/ID#: Solinist 101			Other Equipment/ID#: NA				Decon Method: Liquinox & DI water			
	Tubing Type/Diameter (in): 1/4"			Other Equipment/ID#: NA				PPE: Level D			
WELL INFO	Casing Type / ID (in): PVC 2"			Unit Casing Volume (gal/lin ft) (A): 0.160				Initial Depth to Water (ft) (B): 16.28			
	Total Well Depth (ft) (C): 37.45			Water Column Thickness (ft) (C-B): 21.17				2nd Depth to Water(pre-purge): 16.28			
	Screened Interval: 21.75 - 36.45			Weather: Cloudy				Well Volume (gal) (A*(C-B)): 3.39			
	Pump placement: 29.10			Well Condition: GOOD				Ferrous Iron: NA			

CASING INFO											
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
6/1/21	1010	16.35	.13	100	22.13	6.62	10.8	0.89	295	96	
	1015	16.40	.26	100	22.89	6.30	11.4	0.54	267	75	
	1020	16.43	.39	100	22.85	6.12	11.2	0.33	255	83	
	1025	16.45	.52	100	22.80	6.11	11.1	0.32	254	84	
	1030	16.47	.65	100	22.76	6.10	11.1	0.31	253	84	
	1035	16.46	.78	100	22.72	6.10	11.1	0.31	252	85	

Colorimeter Results

Time	Analyte	Dilution	Result	Units

Conversions	**Stabilization Criteria**			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
	9	40 ml Glass	HCL	N		VOC

Sample ID: 35AWW16_060121 Sample Time: 1035

bhate ENVIRONMENT INFRASTRUCTURE

GROUNDWATER SAMPLE COLLECTION FORM

LOCATION	Site: LHAAP - 58	Location ID: 35AWW17	Date: 6/3/21
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 2"	Unit Casing Volume (gal/lin ft) (A): 0.160	Initial Depth to Water (ft) (B): 23.02
	Total Well Depth (ft) (C): 42.30	Water Column Thickness (ft) (C-B): 19.28	2nd Depth to Water(pre-purge): 23.02
	Screened Interval: 26.97 - 41.67	Weather: CLEAR	Well Volume (gal) (A*(C-B)): 3.08
	Pump placement: 34.32	Well Condition: BROKEN HINGE	Ferrous Iron: NA

CASING INFO										
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
6/3/21	1105	23.10	.13	100	22.45	6.33	2.32	0.70	157	77	
	1110	23.15	.26	100	21.91	5.89	2.45	0.23	132	112	
	1115	23.19	.39	100	21.77	5.77	2.51	0.08	120	125	
	1120	23.21	.52	100	21.73	5.76	2.52	0.08	119	126	
	1125	23.23	.65	100	21.69	5.76	2.53	0.07	118	127	
	1130	23.24	.78	100	21.65	5.75	2.53	0.07	117	127	

Colorimeter Results

Time	Analyte	Dilution	Result	Units

Conversions	Stabilization Criteria			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
	3	40ml Glass	HCL	N		VOC

Sample ID: 35AWW17_060321 Sample Time: 1130

bhate ENVIRONMENT INFRASTRUCTURE

GROUNDWATER SAMPLE COLLECTION FORM

LOCATION	Site: LHAAP - 58	Location ID: 35AWW18	Date: 6/1/21
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 2"	Unit Casing Volume (gal/lin ft) (A): 0.160	Initial Depth to Water (ft) (B): 23.63
	Total Well Depth (ft) (C): 42.08	Water Column Thickness (ft) (C-B): 18.45	2nd Depth to Water(pre-purge): 23.63
	Screened Interval: 26.85-41.55	Weather: CLOUDY	Well Volume (gal) (A*(C-B)): 2.95
	Pump placement: 34.20	Well Condition: GOOD	Ferrous Iron: NA

CASING INFO											
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
6/1/21	1055	23.70	.13	100	23.90	6.85	9.50	1.17	98.7	-15	
	1100	23.76	.26	100	22.88	6.65	9.55	1.06	91.5	1	
	1105	23.80	.39	100	22.60	6.35	9.14	1.02	87.7	5	
	1110	23.82	.52	100	22.54	6.34	9.13	1.00	87.3	5	
	1115	23.84	.65	100	22.49	6.32	9.12	0.98	86.9	6	
↓	1120	23.86	.78	100	22.46	6.32	9.11	0.97	86.2	6	

Colorimeter Results

Time	Analyte	Dilution	Result	Units

Conversions	**Stabilization Criteria**			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
	3	40ml Glass	HCL	N		VOC

Sample ID: 35AWW18-060121 Sample Time: 1120

bhate ENVIRONMENT INFRASTRUCTURE

GROUNDWATER SAMPLE COLLECTION FORM

LOCATION	Site: LHAAP - 58	Location ID: 35AWW19	Date: 6/3/21
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 2"	Unit Casing Volume (gal/lin ft) (A): 0.160	Initial Depth to Water (ft) (B): 23.98
	Total Well Depth (ft) (C): 32.43	Water Column Thickness (ft) (C-B): 8.45	2nd Depth to Water(pre-purge): 23.98
	Screened Interval: 17.29 - 31.39	Weather: CLEAR	Well Volume (gal) (A*(C-B)): 1.35
	Pump placement: 25.00	Well Condition: BROKEN HINGE	Ferrous Iron: 2.60 mg/L

CASING INFO											
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
6/3/21	0655	24.05	.13	100	20.95	6.13	3.65	0.85	17.3	96	
	0700	24.11	.26	100	20.53	5.48	3.90	0.36	13.5	105	
	0705	24.15	.39	100	20.46	5.33	3.91	0.12	11.8	120	
	0710	24.18	.52	100	20.41	5.33	3.92	0.12	11.3	121	
	0715	24.20	.65	100	20.37	5.32	3.92	0.11	10.7	121	
	0720	24.22	.78	100	20.34	5.32	3.92	0.11	10.4	122	

Colorimeter Results

Time	Analyte	Dilution	Result	Units

Conversions	**Stabilization Criteria**			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
	3	40 ml Glass	HCL	N		VOC
	3	40ml Glass	HCL	N		MEE
	2	40 ml Amber	H2SO4	N		~~H2SO4~~ TOC
	2	40 ml Glass	NA	N		CO2
	1	200 ml Plastic	NA	N		Anions
	1	250 ml Amber	H3PO4	N		VFA
	1	1 Liter Glass	NA	N		DHC/DHB

Sample ID: 35AWW19_060321 Sample Time: 0720

bhate ENVIRONMENT INFRASTRUCTURE

GROUNDWATER SAMPLE COLLECTION FORM

LOCATION	Site: LHAAP - 58	Location ID: 35AWW20	Date: 6/3/21
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 2"	Unit Casing Volume (gal/lin ft) (A): 0.160	Initial Depth to Water (ft) (B): 16.95
	Total Well Depth (ft) (C): 36.05	Water Column Thickness (ft) (C-B): 19.1	2nd Depth to Water(pre-purge): 16.95
	Screened Interval: 20.94 - 35.64	Weather: CLEAR	Well Volume (gal) (A*(C-B)): 3.06
	Pump placement: 28.29	Well Condition: GOOD	Ferrous Iron: 0.75 mg/L

CASING INFO											
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
6/3/21	0835	17.02	.13	100	21.69	6.55	5.03	0.71	17.5	35	
	0840	17.08	.26	100	22.29	6.35	4.99	0.31	15.0	67	
	0845	17.12	.39	100	22.41	6.27	4.99	0.12	14.7	81	
	0850	17.14	.52	100	22.47	6.27	5.00	0.11	14.2	82	
	0855	17.16	.65	100	22.52	6.26	5.00	0.11	13.6	83	
	0900	17.17	.78	100	22.57	6.25	5.00	0.11	13.3	84	

Colorimeter Results

Time	Analyte	Dilution	Result	Units

Conversions	Stabilization Criteria			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
	3	40ml Glass	HCL	N		VOC
	3	40ml Glass	HCL	N		MEE
	2	40 ml Amber	H2SO4	N		TOC
	2	40ml Glass	NA	N		CO2
	1	200ml Plastic	NA	N		Anions
	1	250ml Amber	H3PO4	N		VFA
	1	120ml Plastic	HNO3	N		ARSENIC
Sample ID: 35AWW20_060321					Sample Time: 0900	
	1	1 Liter Glass	NA	N		DHC/DHB

bhate ENVIRONMENT INFRASTRUCTURE

GROUNDWATER SAMPLE COLLECTION FORM

LOCATION	Site: LHAAP - 58	Location ID: 35AWW21	Date: 6/1/21
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 2"	Unit Casing Volume (gal/lin ft) (A): 0.160	Initial Depth to Water (ft) (B): 30.70
	Total Well Depth (ft) (C): 42.80	Water Column Thickness (ft) (C-B): 12.10	2nd Depth to Water(pre-purge): 30.70
	Screened Interval: 27.56 - 42.26	Weather: Cloudy / Rain	Well Volume (gal) (A*(C-B)): 1.94
	Pump placement: 34.85	Well Condition: Broken Hinge	Ferrous Iron: NA

CASING INFO											
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
6/1/21	1225	30.78	.13	100	22.61	5.55	2.47	1.31	68.3	185	
	1230	30.84	.26	100	21.97	5.33	2.54	1.02	60.5	221	
	1235	30.88	.39	100	21.93	5.27	2.60	0.86	57.6	257	
	1240	30.91	.52	100	21.90	5.26	2.61	0.85	57.1	258	
	1245	30.93	.65	100	21.87	5.24	2.62	0.84	56.5	258	
	1250	30.95	.78	100	21.84	5.24	2.62	0.84	56.0	259	

Colorimeter Results

Time	Analyte	Dilution	Result	Units

Conversions	**Stabilization Criteria**			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
	3	40ml Glass	HCl	N		VOC

Sample ID: 35AWW21_060121 Sample Time: 1250

bhate ENVIRONMENT INFRASTRUCTURE

GROUNDWATER SAMPLE COLLECTION FORM

LOCATION	Site: LHAAP - 58	Location ID: 35AWW22	Date: 6/2/21
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 2"	Unit Casing Volume (gal/lin ft) (A): 0.160	Initial Depth to Water (ft) (B): 32.10
	Total Well Depth (ft) (C): 37.68	Water Column Thickness (ft) (C-B): 5.58	2nd Depth to Water (pre-purge): 32.10
	Screened Interval: 22.77 - 36.77	Weather: CLEAR	Well Volume (gal) (A*(C-B)): 0.89
	Pump placement: 34.00	Well Condition: BROKEN HINGE	Ferrous Iron: NA

CASING INFO										
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
6/2/21	1200	32.18	.13	100	24.38	6.12	8.06	1.08	17.4	43	
	1205	32.26	.26	100	23.66	5.78	8.15	0.83	8.3	101	
	1210	32.30	.39	100	23.31	5.53	8.20	0.77	4.0	135	
	1215	32.33	.52	100	23.27	5.53	8.21	0.76	2.2	136	
	1220	32.36	.65	100	23.23	5.52	8.21	0.75	1.3	137	
↓	1225	32.39	.78	100	23.19	5.51	8.21	0.75	0.8	138	

Colorimeter Results

Time	Analyte	Dilution	Result	Units

Conversions	**Stabilization Criteria**			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
	3	40ml GLASS	HCL	N		VOC
Sample ID: 35AWW22_060221				Sample Time: 1225		

bhate ENVIRONMENT INFRASTRUCTURE

GROUNDWATER SAMPLE COLLECTION FORM

LOCATION	Site: LHAAP - 58	Location ID: 35AWW23	Date: 6/3/21
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 2"	Unit Casing Volume (gal/lin ft) (A): 0.160	Initial Depth to Water (ft) (B): 23.05
	Total Well Depth (ft) (C): 43.72	Water Column Thickness (ft) (C-B): 20.67	2nd Depth to Water (pre-purge): 23.05
	Screened Interval: 28.20 - 43.20	Weather: CLEAR	Well Volume (gal) (A*(C-B)): 3.3
	Pump placement: 35.70	Well Condition: GOOD	Ferrous Iron: 4.31 mg/L

CASING INFO											
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
6/3/21	0745	23.12	.13	100	21.17	6.29	4.51	0.69	9.2	-95	
	0750	23.18	.26	100	20.97	6.39	4.57	0.21	9.2	-120	
	0755	23.22	.39	100	20.93	6.43	4.58	0.05	9.4	-128	
	0800	23.25	.52	100	20.89	6.44	4.59	0.05	9.5	-128	
	0805	23.27	.65	100	20.86	6.44	4.59	0.04	9.6	-129	
	0810	23.29	.78	100	20.84	6.44	4.59	0.04	9.7	-129	

Colorimeter Results

Time	Analyte	Dilution	Result	Units

Conversions	Stabilization Criteria			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

No. Containers	Volume/Type	Preserv.	Filter (Y/N)	Method	Parameter(s)
3	40ml Glass	HCL	N		VOC
3	40 ml Glass	HCL	N		MEE
2	40 ml Amber	H2SO4	N		TOC
2	40 ml Glass	NA	N		CO2
1	200 ml Plastic	NA	N		Anions
1	250ml Amber	H3PO4	N		VFA
1	1 Liter Glass	NA	N		DHC/DHB

Sample ID: 35AWW23_060321 Sample Time: 0810

bhate ENVIRONMENT INFRASTRUCTURE

GROUNDWATER SAMPLE COLLECTION FORM

LOCATION	Site: LHAAP - 58	Location ID: 35AWW24	Date: 6/1/21
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 2"	Unit Casing Volume (gal/lin ft) (A): 0.160	Initial Depth to Water (ft) (B): 23.15
	Total Well Depth (ft) (C): 35.03	Water Column Thickness (ft) (C-B): 11.88	2nd Depth to Water(pre-purge): 23.15
	Screened Interval: 25.10 - 35.10	Weather: CLOUDY	Well Volume (gal) (A*(C-B)): 1.90
	Pump placement: 30.10	Well Condition: GOOD	Ferrous Iron: NA

CASING INFO											
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
6/1/21	1140	23.23	.13	100	23.39	6.86	1.01	0.89	86.6	61	
↓	1145	23.29	.26	100	22.65	5.88	0.621	0.48	76.4	132	
	1150	23.33	.39	100	22.23	5.68	0.538	0.33	72.8	164	
	1155	23.36	.52	100	22.16	5.67	0.538	0.32	72.4	165	
	1200	23.38	.65	100	22.12	5.66	0.537	0.32	71.7	165	
↓	1205	23.40	.78	100	22.09	5.66	0.537	0.31	71.1	166	

Colorimeter Results					No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
Time	Analyte	Dilution	Result	Units		6	40ml Glass	HCL	N		VOC

Conversions	Stabilization Criteria										
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%							
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%							
	Cond	+/- 10%	ORP	+/- 10	Sample ID:	35AWW24_060121			Sample Time:		1205

bhate ENVIRONMENT INFRASTRUCTURE

GROUNDWATER SAMPLE COLLECTION FORM

LOCATION	Site: LHAAP - 58	Location ID: LHSmw04	Date: 6/3/21
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 4"	Unit Casing Volume (gal/lin ft) (A): 0.652	Initial Depth to Water (ft) (B): DRY
	Total Well Depth (ft) (C): 31.02	Water Column Thickness (ft) (C-B): NA	2nd Depth to Water(pre-purge): DRY
	Screened Interval: 21.11 - 31.11	Weather: CLEAR	Well Volume (gal) (A*(C-B)): NA
	Pump placement: NA	Well Condition: GOOD	Ferrous Iron: NA

CASING INFO											
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
6/3/21			DRY WELL								

Colorimeter Results				
Time	Analyte	Dilution	Result	Units

Conversions	Stabilization Criteria			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
Sample ID:			Sample Time:			

bhate ENVIRONMENT INFRASTRUCTURE

GROUNDWATER SAMPLE COLLECTION FORM

LOCATION	Site: LHAAP - 58	Location ID: LHSmw06	Date: 6/3/21
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 4"	Unit Casing Volume (gal/lin ft) (A): 0.652	Initial Depth to Water (ft) (B): 16.07
	Total Well Depth (ft) (C): 23.45	Water Column Thickness (ft) (C-B): 7.38	2nd Depth to Water (pre-purge): 16.07
	Screened Interval: 13.32 - 23.32	Weather: CLEAR	Well Volume (gal) (A*(C-B)): 4.81
	Pump placement: 18.32	Well Condition: ~~GOOD~~ NEEDS PAINT	Ferrous Iron: NA

CASING INFO											
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
6/3/21	0930	16.15	.13	100	22.79	6.55	2.98	0.73	0.8	88	
	0935	16.21	.26	100	22.12	6.21	2.27	0.24	0.1	131	
	0940	16.25	.39	100	21.96	6.00	2.08	0.13	0.0	163	
	0945	16.28	.52	100	21.91	5.99	2.07	0.13	0.0	164	
	0950	16.30	.65	100	21.87	5.98	2.07	0.12	0.0	165	
	0955	16.32	.78	100	21.83	5.98	2.06	0.12	0.0	166	

Colorimeter Results

Time	Analyte	Dilution	Result	Units

Conversions	Stabilization Criteria			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
3	40 ml GLASS		HCL	N		VOC
1	120ml Plastic		HNO3	N		ARSENIC

Sample ID: LHSmw06_060321 Sample Time: 0955

bhate ENVIRONMENT INFRASTRUCTURE

GROUNDWATER SAMPLE COLLECTION FORM

LOCATION	Site: LHAAP - 58	Location ID: LHSMW07	Date: 6/2/21
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 4"	Unit Casing Volume (gal/lin ft) (A): 0.652	Initial Depth to Water (ft) (B): 16.57
	Total Well Depth (ft) (C): 30.45	Water Column Thickness (ft) (C-B): 13.88	2nd Depth to Water(pre-purge): 16.57
	Screened Interval: 19.73 - 29.73	Weather: CLEAR	Well Volume (gal) (A*(C-B)): 9.05
	Pump placement: 24.73	Well Condition: BROKEN HINGE	Ferrous Iron: 0.47 mg/L

CASING INFO											
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
6/2/21	1010	16.65	.13	100	21.98	6.59	9.39	0.81	3.6	-120	
	1015	16.70	.26	100	21.35	6.55	9.52	0.27	2.5	-135	
	1020	16.73	.39	100	21.32	6.53	9.58	0.14	2.0	-142	
	1025	16.75	.52	100	21.28	6.52	9.59	0.13	1.6	-143	
	1030	16.76	.65	100	21.24	6.52	9.60	0.13	1.1	-143	
↓	1035	16.77	.78	100	21.20	6.52	9.60	0.13	0.8	-144	

Colorimeter Results

Time	Analyte	Dilution	Result	Units

Conversions	Stabilization Criteria			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

No. Containers	Volume	Type	Preserv.	Filter (Y/N)	Method	Parameter(s)
3	40ml	GLASS	HCL	N		VOC
3	40ml	GLASS	HCL	N		MEE
2	40ml	AMBER	H2SO4	N		TOC
2	40ml	GLASS	NH	N		CO2
1	200ml	PLASTIC	NA	N		ANIONS
1	250ml	AMBER	H3PO4	N		VFA
1	1 Liter	GLASS	NA	N		DHC/DHB

Sample ID: LHSMW07_060221 Sample Time: 1035

APPENDIX F
LABORATORY ANALYTICAL RESULTS
(PROVIDED ON CD)

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December 28, 2020

Marcia Olive
Bhate Environmental Associates, Inc.
445 Union Blvd Ste 129
Lakewood, CO 80228

Work Order: **HS20120090**

Laboratory Results for: **LHAAP / Site 58**

Dear Marcia Olive,

ALS Environmental received 11 sample(s) on Dec 02, 2020 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Generated By: DAYNA.FISHER
RJ Modashia
Project Manager

ALS Houston, US Date: 28-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
Work Order: HS20120090

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS20120090-01	03WW01_120120	Groundwater		01-Dec-2020 07:20	02-Dec-2020 10:40	☐
HS20120090-02	35AWW08_120120	Groundwater		01-Dec-2020 08:20	02-Dec-2020 10:40	☐
HS20120090-03	35AWW11_120120	Groundwater		01-Dec-2020 09:15	02-Dec-2020 10:40	☐
HS20120090-04	35AWW11_120120_a	Groundwater		01-Dec-2020 09:15	02-Dec-2020 10:40	☐
HS20120090-05	35AWW06_120120	Groundwater		01-Dec-2020 10:20	02-Dec-2020 10:40	☐
HS20120090-06	35AWW17_120120	Groundwater		01-Dec-2020 11:10	02-Dec-2020 10:40	☐
HS20120090-07	35AWW18_120120	Groundwater		01-Dec-2020 11:55	02-Dec-2020 10:40	☐
HS20120090-08	35AWW18_120120_a	Groundwater		01-Dec-2020 11:55	02-Dec-2020 10:40	☐
HS20120090-09	35AWW16_120120	Groundwater		01-Dec-2020 12:40	02-Dec-2020 10:40	☐
HS20120090-10	35AWW15_120120	Groundwater		01-Dec-2020 13:20	02-Dec-2020 10:40	☐
HS20120090-11	Trip Blank	Water	VBLKW-112420-44	01-Dec-2020 00:00	02-Dec-2020 10:40	☐

ALS Houston, US Date: 28-Dec-20

Client: Bhate Environmental Associates, Inc. **CASE NARRATIVE**
Project: LHAAP / Site 58
Work Order: HS20120090

Work Order Comments

- The analyses for Total Organic Carbon were subcontracted to ALS Environmental in Kelso, WA. Final Report attached.
- The analyses for Volatile Fatty Acids were subcontracted to ALS Environmental in Rochester, NY. Final Report attached.
- The analyses for Methane, Ethene, Ethane and Carbon Dioxide were subcontracted to ALS Environmental in Simi Valley, CA. Final Report attached.
- The analyses for DHC/DHB were subcontracted to Microbial Insights in Knoxville TN. Final report attached.

GCMS Volatiles by Method SW8260

Batch ID: R374536

Sample ID: 03WW01_120120 (HS20120090-01)

- Sample run as dilution due to sample foaming.

Sample ID: 35AWW08_120120 (HS20120090-02)

- Sample run as dilution due to sample foaming.

Sample ID: HS20120448-34MS

- MS and MSD are for an unrelated sample

Batch ID: R374634

Sample ID: HS20120243-01MS

- MS and MSD are for an unrelated sample

Metals by Method SW6020

Batch ID: 160306

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method SW9056

Batch ID: R374294

Sample ID: 03WW01_120120 (HS20120090-01)

- Sample ran at 2X due to high concentration of Chloride

Sample ID: 35AWW06_120120 (HS20120090-05)

- Sample ran at 2X due to high concentration of Chloride

Sample ID: 35AWW08_120120 (HS20120090-02)

- Sample ran at 5X due to high concentration of Chloride

Sample ID: 35AWW11_120120 (HS20120090-03)

- Sample ran at 5X due to high concentration of Chloride

Sample ID: 35AWW11_120120_a (HS20120090-04)

ALS Houston, US Date: 28-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
Work Order: HS20120090

CASE NARRATIVE

WetChemistry by Method SW9056

Batch ID: R374294

- Sample ran at 5X due to high concentration of Chloride

Sample ID: HS20120073-02MS

- MS and MSD are for an unrelated sample

Batch ID: R374246

Sample ID: HS20120396-55MS

- MS and MSD are for an unrelated sample (Chloride)

ALS Houston, US Date: 28-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
Sample ID: 03WW01_120120
Collection Date: 01-Dec-2020 07:20

ANALYTICAL REPORT
WorkOrder:HS20120090
Lab ID:HS20120090-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: QX
1,1,1,2-Tetrachloroethane	5.0	U	3.0	5.0	10	ug/L	10	12-Dec-2020 23:36
1,1,1-Trichloroethane	5.0	U	2.0	5.0	10	ug/L	10	12-Dec-2020 23:36
1,1,2,2-Tetrachloroethane	5.0	U	5.0	5.0	10	ug/L	10	12-Dec-2020 23:36
1,1,2-Trichloroethane	5.0	U	3.0	5.0	10	ug/L	10	12-Dec-2020 23:36
1,1-Dichloroethane	5.0	U	2.0	5.0	10	ug/L	10	12-Dec-2020 23:36
1,1-Dichloroethene	5.0	U	2.0	5.0	10	ug/L	10	12-Dec-2020 23:36
1,1-Dichloropropene	5.0	U	3.0	5.0	10	ug/L	10	12-Dec-2020 23:36
1,2,3-Trichlorobenzene	10	U	4.0	10	10	ug/L	10	12-Dec-2020 23:36
1,2,3-Trichloropropane	10	U	5.0	10	10	ug/L	10	12-Dec-2020 23:36
1,2,4-Trichlorobenzene	10	U	5.0	10	10	ug/L	10	12-Dec-2020 23:36
1,2,4-Trimethylbenzene	10	U	3.0	10	10	ug/L	10	12-Dec-2020 23:36
1,2-Dibromo-3-chloropropane	5.0	U	2.0	5.0	10	ug/L	10	12-Dec-2020 23:36
1,2-Dibromoethane	5.0	U	2.0	5.0	10	ug/L	10	12-Dec-2020 23:36
1,2-Dichlorobenzene	10	U	5.0	10	10	ug/L	10	12-Dec-2020 23:36
1,2-Dichloroethane	5.0	U	2.0	5.0	10	ug/L	10	12-Dec-2020 23:36
1,2-Dichloropropane	5.0	U	5.0	5.0	10	ug/L	10	12-Dec-2020 23:36
1,3,5-Trimethylbenzene	5.0	U	3.0	5.0	10	ug/L	10	12-Dec-2020 23:36
1,3-Dichlorobenzene	10	U	4.0	10	10	ug/L	10	12-Dec-2020 23:36
1,3-Dichloropropane	10	U	3.0	10	10	ug/L	10	12-Dec-2020 23:36
1,4-Dichlorobenzene	10	U	4.0	10	10	ug/L	10	12-Dec-2020 23:36
2,2-Dichloropropane	5.0	U	2.0	5.0	10	ug/L	10	12-Dec-2020 23:36
2-Butanone	10	U	5.0	10	20	ug/L	10	12-Dec-2020 23:36
2-Chlorotoluene	10	U	3.0	10	10	ug/L	10	12-Dec-2020 23:36
2-Hexanone	20	U	10	20	20	ug/L	10	12-Dec-2020 23:36
4-Chlorotoluene	10	U	4.0	10	10	ug/L	10	12-Dec-2020 23:36
4-Isopropyltoluene	10	U	3.0	10	10	ug/L	10	12-Dec-2020 23:36
4-Methyl-2-pentanone	20	U	7.0	20	20	ug/L	10	12-Dec-2020 23:36
Acetone	10	U	4.0	10	20	ug/L	10	12-Dec-2020 23:36
Benzene	5.0	U	2.0	5.0	10	ug/L	10	12-Dec-2020 23:36
Bromobenzene	10	U	4.0	10	10	ug/L	10	12-Dec-2020 23:36
Bromochloromethane	5.0	U	2.0	5.0	10	ug/L	10	12-Dec-2020 23:36
Bromodichloromethane	5.0	U	2.0	5.0	10	ug/L	10	12-Dec-2020 23:36
Bromoform	5.0	U	4.0	5.0	10	ug/L	10	12-Dec-2020 23:36
Bromomethane	5.0	U	4.0	5.0	10	ug/L	10	12-Dec-2020 23:36
Carbon disulfide	10	U	6.0	10	20	ug/L	10	12-Dec-2020 23:36
Carbon tetrachloride	5.0	U	5.0	5.0	10	ug/L	10	12-Dec-2020 23:36
Chlorobenzene	5.0	U	3.0	5.0	10	ug/L	10	12-Dec-2020 23:36
Chloroethane	5.0	U	3.0	5.0	10	ug/L	10	12-Dec-2020 23:36
Chloroform	5.0	U	2.0	5.0	10	ug/L	10	12-Dec-2020 23:36

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 28-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
Sample ID: 03WW01_120120
Collection Date: 01-Dec-2020 07:20

ANALYTICAL REPORT
WorkOrder:HS20120090
Lab ID:HS20120090-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: QX
Chloromethane	5.0	U	2.0	5.0	10	ug/L	10	12-Dec-2020 23:36
cis-1,2-Dichloroethene	**7.2**	J	**2.0**	**5.0**	**10**	**ug/L**	10	12-Dec-2020 23:36
cis-1,3-Dichloropropene	5.0	U	1.0	5.0	10	ug/L	10	12-Dec-2020 23:36
Dibromochloromethane	5.0	U	3.0	5.0	10	ug/L	10	12-Dec-2020 23:36
Dibromomethane	5.0	U	2.0	5.0	10	ug/L	10	12-Dec-2020 23:36
Dichlorodifluoromethane	5.0	U	3.0	5.0	10	ug/L	10	12-Dec-2020 23:36
Ethylbenzene	10	U	3.0	10	10	ug/L	10	12-Dec-2020 23:36
Hexachlorobutadiene	10	U	10	10	10	ug/L	10	12-Dec-2020 23:36
Isopropylbenzene	10	U	3.0	10	10	ug/L	10	12-Dec-2020 23:36
m,p-Xylene	10	U	5.0	10	20	ug/L	10	12-Dec-2020 23:36
Methylene chloride	10	U	4.0	10	20	ug/L	10	12-Dec-2020 23:36
n-Butylbenzene	10	U	4.0	10	10	ug/L	10	12-Dec-2020 23:36
n-Propylbenzene	10	U	3.0	10	10	ug/L	10	12-Dec-2020 23:36
Naphthalene	10	U	3.0	10	10	ug/L	10	12-Dec-2020 23:36
o-Xylene	10	U	3.0	10	10	ug/L	10	12-Dec-2020 23:36
sec-Butylbenzene	10	U	3.0	10	10	ug/L	10	12-Dec-2020 23:36
Styrene	10	U	3.0	10	10	ug/L	10	12-Dec-2020 23:36
tert-Butylbenzene	5.0	U	3.0	5.0	10	ug/L	10	12-Dec-2020 23:36
Tetrachloroethene	5.0	U	3.0	5.0	10	ug/L	10	12-Dec-2020 23:36
Toluene	5.0	U	2.0	5.0	10	ug/L	10	12-Dec-2020 23:36
trans-1,2-Dichloroethene	5.0	U	2.0	5.0	10	ug/L	10	12-Dec-2020 23:36
trans-1,3-Dichloropropene	5.0	U	2.0	5.0	10	ug/L	10	12-Dec-2020 23:36
Trichloroethene	**24**		**2.0**	**5.0**	**10**	**ug/L**	10	12-Dec-2020 23:36
Trichlorofluoromethane	10	U	3.0	10	10	ug/L	10	12-Dec-2020 23:36
Vinyl chloride	5.0	U	2.0	5.0	10	ug/L	10	12-Dec-2020 23:36
Surr: 1,2-Dichloroethane-d4	*87.8*			**0**	*81-118*	*%REC*	*10*	*12-Dec-2020 23:36*
Surr: 4-Bromofluorobenzene	*93.3*			**0**	*85-114*	*%REC*	*10*	*12-Dec-2020 23:36*
Surr: Dibromofluoromethane	*88.1*			**0**	*80-119*	*%REC*	*10*	*12-Dec-2020 23:36*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*10*	*12-Dec-2020 23:36*
METALS BY ICPMS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 03-Dec-2020		Analyst: JHD
Arsenic	**0.0152**		**0.000400**	**0.00100**	**0.00500**	**mg/L**	1	10-Dec-2020 16:44
ANIONS BY SW9056A		**Method:SW9056**						Analyst: YP
Chloride	**870**		**10.0**	**25.0**	**25.0**	**mg/L**	50	09-Dec-2020 02:04
Nitrogen, Nitrate (As N)	**0.0690**	J	**0.0600**	**0.200**	**0.200**	**mg/L**	2	03-Dec-2020 06:47
Nitrogen, Nitrite (As N)	0.200	U	0.0600	0.200	0.200	mg/L	2	03-Dec-2020 06:47
Sulfate	**82.7**		**0.400**	**1.00**	**1.00**	**mg/L**	2	03-Dec-2020 06:47
SUBCONTRACT ANALYSIS - DHC/DHB		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	09-Dec-2020 17:36

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US

Date: 28-Dec-20

Client: Bhate Environmental Associates, Inc.

ANALYTICAL REPORT

Project: LHAAP / Site 58

WorkOrder:HS20120090

Sample ID: 03WW01_120120

Lab ID:HS20120090-01

Collection Date: 01-Dec-2020 07:20

Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUBCA
Subcontract Analysis	See Attached		0	0		NA	1	15-Dec-2020 09:48
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	18-Dec-2020 10:40
SUBCONTRACT ANALYSIS - VOLATILE FATTY ACIDS		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	28-Dec-2020 11:10

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 28-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
Sample ID: 35AWW08_120120
Collection Date: 01-Dec-2020 08:20

ANALYTICAL REPORT
WorkOrder:HS20120090
Lab ID:HS20120090-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: QX
1,1,1,2-Tetrachloroethane	5.0	U	3.0	5.0	10	ug/L	10	12-Dec-2020 23:57
1,1,1-Trichloroethane	5.0	U	2.0	5.0	10	ug/L	10	12-Dec-2020 23:57
1,1,2,2-Tetrachloroethane	5.0	U	5.0	5.0	10	ug/L	10	12-Dec-2020 23:57
1,1,2-Trichloroethane	5.0	U	3.0	5.0	10	ug/L	10	12-Dec-2020 23:57
1,1-Dichloroethane	5.0	U	2.0	5.0	10	ug/L	10	12-Dec-2020 23:57
1,1-Dichloroethene	5.0	U	2.0	5.0	10	ug/L	10	12-Dec-2020 23:57
1,1-Dichloropropene	5.0	U	3.0	5.0	10	ug/L	10	12-Dec-2020 23:57
1,2,3-Trichlorobenzene	10	U	4.0	10	10	ug/L	10	12-Dec-2020 23:57
1,2,3-Trichloropropane	10	U	5.0	10	10	ug/L	10	12-Dec-2020 23:57
1,2,4-Trichlorobenzene	10	U	5.0	10	10	ug/L	10	12-Dec-2020 23:57
1,2,4-Trimethylbenzene	10	U	3.0	10	10	ug/L	10	12-Dec-2020 23:57
1,2-Dibromo-3-chloropropane	5.0	U	2.0	5.0	10	ug/L	10	12-Dec-2020 23:57
1,2-Dibromoethane	5.0	U	2.0	5.0	10	ug/L	10	12-Dec-2020 23:57
1,2-Dichlorobenzene	10	U	5.0	10	10	ug/L	10	12-Dec-2020 23:57
1,2-Dichloroethane	5.0	U	2.0	5.0	10	ug/L	10	12-Dec-2020 23:57
1,2-Dichloropropane	5.0	U	5.0	5.0	10	ug/L	10	12-Dec-2020 23:57
1,3,5-Trimethylbenzene	5.0	U	3.0	5.0	10	ug/L	10	12-Dec-2020 23:57
1,3-Dichlorobenzene	10	U	4.0	10	10	ug/L	10	12-Dec-2020 23:57
1,3-Dichloropropane	10	U	3.0	10	10	ug/L	10	12-Dec-2020 23:57
1,4-Dichlorobenzene	10	U	4.0	10	10	ug/L	10	12-Dec-2020 23:57
2,2-Dichloropropane	5.0	U	2.0	5.0	10	ug/L	10	12-Dec-2020 23:57
2-Butanone	10	U	5.0	10	20	ug/L	10	12-Dec-2020 23:57
2-Chlorotoluene	10	U	3.0	10	10	ug/L	10	12-Dec-2020 23:57
2-Hexanone	20	U	10	20	20	ug/L	10	12-Dec-2020 23:57
4-Chlorotoluene	10	U	4.0	10	10	ug/L	10	12-Dec-2020 23:57
4-Isopropyltoluene	10	U	3.0	10	10	ug/L	10	12-Dec-2020 23:57
4-Methyl-2-pentanone	20	U	7.0	20	20	ug/L	10	12-Dec-2020 23:57
Acetone	10	U	4.0	10	20	ug/L	10	12-Dec-2020 23:57
Benzene	5.0	U	2.0	5.0	10	ug/L	10	12-Dec-2020 23:57
Bromobenzene	10	U	4.0	10	10	ug/L	10	12-Dec-2020 23:57
Bromochloromethane	5.0	U	2.0	5.0	10	ug/L	10	12-Dec-2020 23:57
Bromodichloromethane	5.0	U	2.0	5.0	10	ug/L	10	12-Dec-2020 23:57
Bromoform	5.0	U	4.0	5.0	10	ug/L	10	12-Dec-2020 23:57
Bromomethane	5.0	U	4.0	5.0	10	ug/L	10	12-Dec-2020 23:57
Carbon disulfide	10	U	6.0	10	20	ug/L	10	12-Dec-2020 23:57
Carbon tetrachloride	5.0	U	5.0	5.0	10	ug/L	10	12-Dec-2020 23:57
Chlorobenzene	5.0	U	3.0	5.0	10	ug/L	10	12-Dec-2020 23:57
Chloroethane	5.0	U	3.0	5.0	10	ug/L	10	12-Dec-2020 23:57
Chloroform	5.0	U	2.0	5.0	10	ug/L	10	12-Dec-2020 23:57

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 28-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
Sample ID: 35AWW08_120120
Collection Date: 01-Dec-2020 08:20

ANALYTICAL REPORT
WorkOrder:HS20120090
Lab ID:HS20120090-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: QX
Chloromethane	5.0	U	2.0	5.0	10	ug/L	10	12-Dec-2020 23:57
cis-1,2-Dichloroethene	**18**		**2.0**	**5.0**	**10**	**ug/L**	10	12-Dec-2020 23:57
cis-1,3-Dichloropropene	5.0	U	1.0	5.0	10	ug/L	10	12-Dec-2020 23:57
Dibromochloromethane	5.0	U	3.0	5.0	10	ug/L	10	12-Dec-2020 23:57
Dibromomethane	5.0	U	2.0	5.0	10	ug/L	10	12-Dec-2020 23:57
Dichlorodifluoromethane	10	U	3.0	10	10	ug/L	10	12-Dec-2020 23:57
Ethylbenzene	5.0	U	3.0	5.0	10	ug/L	10	12-Dec-2020 23:57
Hexachlorobutadiene	10	U	10	10	10	ug/L	10	12-Dec-2020 23:57
Isopropylbenzene	10	U	3.0	10	10	ug/L	10	12-Dec-2020 23:57
m,p-Xylene	10	U	5.0	10	20	ug/L	10	12-Dec-2020 23:57
Methylene chloride	10	U	4.0	10	20	ug/L	10	12-Dec-2020 23:57
n-Butylbenzene	10	U	4.0	10	10	ug/L	10	12-Dec-2020 23:57
n-Propylbenzene	5.0	U	3.0	5.0	10	ug/L	10	12-Dec-2020 23:57
Naphthalene	5.0	U	3.0	5.0	10	ug/L	10	12-Dec-2020 23:57
o-Xylene	5.0	U	3.0	5.0	10	ug/L	10	12-Dec-2020 23:57
sec-Butylbenzene	5.0	U	3.0	5.0	10	ug/L	10	12-Dec-2020 23:57
Styrene	5.0	U	3.0	5.0	10	ug/L	10	12-Dec-2020 23:57
tert-Butylbenzene	10	U	3.0	10	10	ug/L	10	12-Dec-2020 23:57
Tetrachloroethene	5.0	U	3.0	5.0	10	ug/L	10	12-Dec-2020 23:57
Toluene	5.0	U	2.0	5.0	10	ug/L	10	12-Dec-2020 23:57
trans-1,2-Dichloroethene	5.0	U	2.0	5.0	10	ug/L	10	12-Dec-2020 23:57
trans-1,3-Dichloropropene	5.0	U	2.0	5.0	10	ug/L	10	12-Dec-2020 23:57
Trichloroethene	5.0	U	2.0	5.0	10	ug/L	10	12-Dec-2020 23:57
Trichlorofluoromethane	5.0	U	3.0	5.0	10	ug/L	10	12-Dec-2020 23:57
Vinyl chloride	**6.1**	J	**2.0**	**5.0**	**10**	**ug/L**	10	12-Dec-2020 23:57
Surr: 1,2-Dichloroethane-d4	*85.8*			**0**	*81-118*	*%REC*	*10*	*12-Dec-2020 23:57*
Surr: 4-Bromofluorobenzene	*88.8*			**0**	*85-114*	*%REC*	*10*	*12-Dec-2020 23:57*
Surr: Dibromofluoromethane	*88.5*			**0**	*80-119*	*%REC*	*10*	*12-Dec-2020 23:57*
Surr: Toluene-d8	*105*			**0**	*89-112*	*%REC*	*10*	*12-Dec-2020 23:57*
METALS BY ICPMS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 03-Dec-2020		Analyst: JHD
Arsenic	**0.0244**		**0.000400**	**0.00100**	**0.00500**	**mg/L**	1	10-Dec-2020 16:46
ANIONS BY SW9056A		**Method:SW9056**						Analyst: YP
Chloride	**2,480**		**40.0**	**100**	**100**	**mg/L**	200	09-Dec-2020 02:59
Nitrogen, Nitrate (As N)	**0.188**	J	**0.150**	**0.500**	**0.500**	**mg/L**	5	03-Dec-2020 07:06
Nitrogen, Nitrite (As N)	0.500	U	0.150	0.500	0.500	mg/L	5	03-Dec-2020 07:06
Sulfate	**63.0**		**1.00**	**2.50**	**2.50**	**mg/L**	5	03-Dec-2020 07:06
SUBCONTRACT ANALYSIS - DHC/DHB		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	09-Dec-2020 17:36

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US

Date: 28-Dec-20

Client: Bhate Environmental Associates, Inc.

ANALYTICAL REPORT

Project: LHAAP / Site 58

WorkOrder:HS20120090

Sample ID: 35AWW08_120120

Lab ID:HS20120090-02

Collection Date: 01-Dec-2020 08:20

Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUBCA
Subcontract Analysis	See Attached		0	0		NA	1	15-Dec-2020 09:48
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	18-Dec-2020 10:40
SUBCONTRACT ANALYSIS - VOLATILE FATTY ACIDS		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	28-Dec-2020 11:10

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 28-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
Sample ID: 35AWW11_120120
Collection Date: 01-Dec-2020 09:15

ANALYTICAL REPORT
WorkOrder:HS20120090
Lab ID:HS20120090-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: QX
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	13-Dec-2020 00:18
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2020 00:18
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	ug/L	1	13-Dec-2020 00:18
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2020 00:18
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2020 00:18
1,1-Dichloroethene	**0.53**	J	**0.20**	**0.50**	**1.0**	**ug/L**	1	13-Dec-2020 00:18
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	13-Dec-2020 00:18
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	13-Dec-2020 00:18
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	13-Dec-2020 00:18
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	13-Dec-2020 00:18
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2020 00:18
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2020 00:18
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2020 00:18
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	13-Dec-2020 00:18
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2020 00:18
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	13-Dec-2020 00:18
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2020 00:18
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	13-Dec-2020 00:18
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2020 00:18
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	13-Dec-2020 00:18
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2020 00:18
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	13-Dec-2020 00:18
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2020 00:18
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	13-Dec-2020 00:18
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	13-Dec-2020 00:18
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2020 00:18
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	13-Dec-2020 00:18
Acetone	1.0	U	0.40	1.0	2.0	ug/L	1	13-Dec-2020 00:18
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2020 00:18
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	13-Dec-2020 00:18
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2020 00:18
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2020 00:18
Bromoform	0.50	U	0.40	0.50	1.0	ug/L	1	13-Dec-2020 00:18
Bromomethane	0.50	U	0.40	0.50	1.0	ug/L	1	13-Dec-2020 00:18
Carbon disulfide	1.0	U	0.60	1.0	2.0	ug/L	1	13-Dec-2020 00:18
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	ug/L	1	13-Dec-2020 00:18
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	13-Dec-2020 00:18
Chloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2020 00:18
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2020 00:18

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 28-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
Sample ID: 35AWW11_120120
Collection Date: 01-Dec-2020 09:15

ANALYTICAL REPORT
WorkOrder:HS20120090
Lab ID:HS20120090-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: QX
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2020 00:18
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2020 00:18
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	13-Dec-2020 00:18
Dibromochloromethane	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2020 00:18
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2020 00:18
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2020 00:18
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	13-Dec-2020 00:18
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	13-Dec-2020 00:18
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	13-Dec-2020 00:18
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	13-Dec-2020 00:18
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	13-Dec-2020 00:18
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	13-Dec-2020 00:18
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	13-Dec-2020 00:18
Naphthalene	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2020 00:18
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	13-Dec-2020 00:18
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2020 00:18
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	13-Dec-2020 00:18
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	13-Dec-2020 00:18
Tetrachloroethene	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2020 00:18
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2020 00:18
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2020 00:18
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2020 00:18
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2020 00:18
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2020 00:18
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2020 00:18
Surr: 1,2-Dichloroethane-d4	*88.1*			**0**	*81-118*	*%REC*	*1*	*13-Dec-2020 00:18*
Surr: 4-Bromofluorobenzene	*92.9*			**0**	*85-114*	*%REC*	*1*	*13-Dec-2020 00:18*
Surr: Dibromofluoromethane	*89.0*			**0**	*80-119*	*%REC*	*1*	*13-Dec-2020 00:18*
Surr: Toluene-d8	*103*			**0**	*89-112*	*%REC*	*1*	*13-Dec-2020 00:18*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: YP
Chloride	**1,990**		**40.0**	**100**	**100**	**mg/L**	200	09-Dec-2020 03:17
Nitrogen, Nitrate (As N)	**0.248**	J	**0.150**	**0.500**	**0.500**	**mg/L**	5	03-Dec-2020 07:24
Nitrogen, Nitrite (As N)	0.500	U	0.150	0.500	0.500	mg/L	5	03-Dec-2020 07:24
Sulfate	**415**		**1.00**	**2.50**	**2.50**	**mg/L**	5	03-Dec-2020 07:24
SUBCONTRACT ANALYSIS - DHC/DHB		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	09-Dec-2020 17:36
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUBCA
Subcontract Analysis	See Attached		0	0		NA	1	15-Dec-2020 09:48

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 28-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
Sample ID: 35AWW11_120120
Collection Date: 01-Dec-2020 09:15

ANALYTICAL REPORT
WorkOrder:HS20120090
Lab ID:HS20120090-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	18-Dec-2020 10:40
SUBCONTRACT ANALYSIS - VOLATILE FATTY ACIDS		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	28-Dec-2020 11:10

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 28-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
Sample ID: 35AWW11_120120_a
Collection Date: 01-Dec-2020 09:15

ANALYTICAL REPORT
WorkOrder:HS20120090
Lab ID:HS20120090-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: QX
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2020 00:39
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2020 00:39
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	ug/L	1	13-Dec-2020 00:39
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2020 00:39
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2020 00:39
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2020 00:39
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2020 00:39
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	13-Dec-2020 00:39
1,2,3-Trichloropropane	**26**		**0.50**	**1.0**	**1.0**	**ug/L**	1	13-Dec-2020 00:39
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	13-Dec-2020 00:39
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	13-Dec-2020 00:39
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2020 00:39
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2020 00:39
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	13-Dec-2020 00:39
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2020 00:39
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	13-Dec-2020 00:39
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2020 00:39
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	13-Dec-2020 00:39
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	13-Dec-2020 00:39
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	13-Dec-2020 00:39
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2020 00:39
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	13-Dec-2020 00:39
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	13-Dec-2020 00:39
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	13-Dec-2020 00:39
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	13-Dec-2020 00:39
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	13-Dec-2020 00:39
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	13-Dec-2020 00:39
Acetone	1.0	U	0.40	1.0	2.0	ug/L	1	13-Dec-2020 00:39
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2020 00:39
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	13-Dec-2020 00:39
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2020 00:39
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2020 00:39
Bromoform	0.50	U	0.40	0.50	1.0	ug/L	1	13-Dec-2020 00:39
Bromomethane	0.50	U	0.40	0.50	1.0	ug/L	1	13-Dec-2020 00:39
Carbon disulfide	1.0	U	0.60	1.0	2.0	ug/L	1	13-Dec-2020 00:39
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	ug/L	1	13-Dec-2020 00:39
Chlorobenzene	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2020 00:39
Chloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2020 00:39
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2020 00:39

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 28-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
Sample ID: 35AWW11_120120_a
Collection Date: 01-Dec-2020 09:15

ANALYTICAL REPORT
WorkOrder:HS20120090
Lab ID:HS20120090-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: QX
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2020 00:39
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2020 00:39
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	13-Dec-2020 00:39
Dibromochloromethane	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2020 00:39
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2020 00:39
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	13-Dec-2020 00:39
Ethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2020 00:39
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	13-Dec-2020 00:39
Isopropylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2020 00:39
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	13-Dec-2020 00:39
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	13-Dec-2020 00:39
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	13-Dec-2020 00:39
n-Propylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2020 00:39
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	13-Dec-2020 00:39
o-Xylene	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2020 00:39
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	13-Dec-2020 00:39
Styrene	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2020 00:39
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2020 00:39
Tetrachloroethene	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2020 00:39
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2020 00:39
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2020 00:39
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2020 00:39
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2020 00:39
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	13-Dec-2020 00:39
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2020 00:39
Surr: 1,2-Dichloroethane-d4	*86.9*			**0**	*81-118*	*%REC*	*1*	*13-Dec-2020 00:39*
Surr: 4-Bromofluorobenzene	*92.6*			**0**	*85-114*	*%REC*	*1*	*13-Dec-2020 00:39*
Surr: Dibromofluoromethane	*87.7*			**0**	*80-119*	*%REC*	*1*	*13-Dec-2020 00:39*
Surr: Toluene-d8	*103*			**0**	*89-112*	*%REC*	*1*	*13-Dec-2020 00:39*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: YP
Chloride	**2,030**		**40.0**	**100**	**100**	**mg/L**	200	09-Dec-2020 03:35
Nitrogen, Nitrate (As N)	**0.284**	J	**0.150**	**0.500**	**0.500**	**mg/L**	5	03-Dec-2020 08:18
Nitrogen, Nitrite (As N)	0.500	U	0.150	0.500	0.500	mg/L	5	03-Dec-2020 08:18
Sulfate	**295**		**1.00**	**2.50**	**2.50**	**mg/L**	5	03-Dec-2020 08:18
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUBCA
Subcontract Analysis	See Attached		0	0		NA	1	15-Dec-2020 09:48
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	18-Dec-2020 10:40

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US

Date: 28-Dec-20

Client: Bhate Environmental Associates, Inc.

ANALYTICAL REPORT

Project: LHAAP / Site 58

WorkOrder:HS20120090

Sample ID: 35AWW11_120120_a

Lab ID:HS20120090-04

Collection Date: 01-Dec-2020 09:15

Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - VOLATILE FATTY ACIDS	**Method:NA**							Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	28-Dec-2020 11:10

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 28-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
Sample ID: 35AWW06_120120
Collection Date: 01-Dec-2020 10:20

ANALYTICAL REPORT
WorkOrder:HS20120090
Lab ID:HS20120090-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: QX
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	13-Dec-2020 01:00
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2020 01:00
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	ug/L	1	13-Dec-2020 01:00
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2020 01:00
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2020 01:00
1,1-Dichloroethene	**0.78**	J	**0.20**	**0.50**	**1.0**	**ug/L**	1	13-Dec-2020 01:00
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	13-Dec-2020 01:00
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	13-Dec-2020 01:00
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	13-Dec-2020 01:00
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	13-Dec-2020 01:00
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2020 01:00
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2020 01:00
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2020 01:00
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	13-Dec-2020 01:00
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2020 01:00
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	13-Dec-2020 01:00
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	13-Dec-2020 01:00
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	13-Dec-2020 01:00
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2020 01:00
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	13-Dec-2020 01:00
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2020 01:00
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	13-Dec-2020 01:00
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2020 01:00
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	13-Dec-2020 01:00
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	13-Dec-2020 01:00
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2020 01:00
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	13-Dec-2020 01:00
Acetone	1.0	U	0.40	1.0	2.0	ug/L	1	13-Dec-2020 01:00
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2020 01:00
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	13-Dec-2020 01:00
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2020 01:00
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2020 01:00
Bromoform	0.50	U	0.40	0.50	1.0	ug/L	1	13-Dec-2020 01:00
Bromomethane	0.50	U	0.40	0.50	1.0	ug/L	1	13-Dec-2020 01:00
Carbon disulfide	1.0	U	0.60	1.0	2.0	ug/L	1	13-Dec-2020 01:00
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	ug/L	1	13-Dec-2020 01:00
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	13-Dec-2020 01:00
Chloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2020 01:00
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2020 01:00

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 28-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
Sample ID: 35AWW06_120120
Collection Date: 01-Dec-2020 10:20

ANALYTICAL REPORT
WorkOrder:HS20120090
Lab ID:HS20120090-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: QX
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2020 01:00
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2020 01:00
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	13-Dec-2020 01:00
Dibromochloromethane	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2020 01:00
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2020 01:00
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2020 01:00
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	13-Dec-2020 01:00
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	13-Dec-2020 01:00
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	13-Dec-2020 01:00
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	13-Dec-2020 01:00
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	13-Dec-2020 01:00
n-Butylbenzene	**1.7**		**0.40**	**1.0**	**1.0**	**ug/L**	1	13-Dec-2020 01:00
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	13-Dec-2020 01:00
Naphthalene	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2020 01:00
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	13-Dec-2020 01:00
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2020 01:00
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	13-Dec-2020 01:00
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	13-Dec-2020 01:00
Tetrachloroethene	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2020 01:00
Toluene	**0.55**	J	**0.20**	**0.50**	**1.0**	**ug/L**	1	13-Dec-2020 01:00
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2020 01:00
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2020 01:00
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2020 01:00
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	13-Dec-2020 01:00
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	13-Dec-2020 01:00
Surr: 1,2-Dichloroethane-d4	*85.9*			**0**	*81-118*	*%REC*	*1*	*13-Dec-2020 01:00*
Surr: 4-Bromofluorobenzene	*95.4*			**0**	*85-114*	*%REC*	*1*	*13-Dec-2020 01:00*
Surr: Dibromofluoromethane	*88.4*			**0**	*80-119*	*%REC*	*1*	*13-Dec-2020 01:00*
Surr: Toluene-d8	*105*			**0**	*89-112*	*%REC*	*1*	*13-Dec-2020 01:00*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: YP
Chloride	**937**		**10.0**	**25.0**	**25.0**	**mg/L**	50	09-Dec-2020 03:53
Nitrogen, Nitrate (As N)	0.200	U	0.0600	0.200	0.200	mg/L	2	03-Dec-2020 08:36
Nitrogen, Nitrite (As N)	0.200	U	0.0600	0.200	0.200	mg/L	2	03-Dec-2020 08:36
Sulfate	**45.6**		**0.400**	**1.00**	**1.00**	**mg/L**	2	03-Dec-2020 08:36
SUBCONTRACT ANALYSIS - DHC/DHB		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	09-Dec-2020 17:36
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUBCA
Subcontract Analysis	See Attached		0	0		NA	1	15-Dec-2020 09:48

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US

Date: 28-Dec-20

Client: Bhate Environmental Associates, Inc.

ANALYTICAL REPORT

Project: LHAAP / Site 58

WorkOrder:HS20120090

Sample ID: 35AWW06_120120

Lab ID:HS20120090-05

Collection Date: 01-Dec-2020 10:20

Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	18-Dec-2020 10:40
SUBCONTRACT ANALYSIS - VOLATILE FATTY ACIDS		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	28-Dec-2020 11:10

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 28-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
Sample ID: 35AWW17_120120
Collection Date: 01-Dec-2020 11:10

ANALYTICAL REPORT
WorkOrder:HS20120090
Lab ID:HS20120090-06
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 14:22
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 14:22
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	ug/L	1	14-Dec-2020 14:22
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 14:22
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 14:22
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 14:22
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 14:22
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	14-Dec-2020 14:22
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	14-Dec-2020 14:22
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	14-Dec-2020 14:22
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	14-Dec-2020 14:22
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 14:22
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 14:22
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	14-Dec-2020 14:22
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 14:22
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	14-Dec-2020 14:22
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 14:22
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	14-Dec-2020 14:22
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	14-Dec-2020 14:22
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	14-Dec-2020 14:22
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 14:22
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	14-Dec-2020 14:22
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	14-Dec-2020 14:22
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	14-Dec-2020 14:22
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	14-Dec-2020 14:22
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	14-Dec-2020 14:22
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	14-Dec-2020 14:22
Acetone	1.0	U	0.40	1.0	2.0	ug/L	1	14-Dec-2020 14:22
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 14:22
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	14-Dec-2020 14:22
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 14:22
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 14:22
Bromoform	0.50	U	0.40	0.50	1.0	ug/L	1	14-Dec-2020 14:22
Bromomethane	0.50	U	0.40	0.50	1.0	ug/L	1	14-Dec-2020 14:22
Carbon disulfide	1.0	U	0.60	1.0	2.0	ug/L	1	14-Dec-2020 14:22
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	ug/L	1	14-Dec-2020 14:22
Chlorobenzene	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 14:22
Chloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 14:22
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 14:22

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 28-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
Sample ID: 35AWW17_120120
Collection Date: 01-Dec-2020 11:10

ANALYTICAL REPORT
WorkOrder:HS20120090
Lab ID:HS20120090-06
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 14:22
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 14:22
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	14-Dec-2020 14:22
Dibromochloromethane	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 14:22
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 14:22
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 14:22
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	14-Dec-2020 14:22
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	14-Dec-2020 14:22
Isopropylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 14:22
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	14-Dec-2020 14:22
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	14-Dec-2020 14:22
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	14-Dec-2020 14:22
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	14-Dec-2020 14:22
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	14-Dec-2020 14:22
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	14-Dec-2020 14:22
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	14-Dec-2020 14:22
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	14-Dec-2020 14:22
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	14-Dec-2020 14:22
Tetrachloroethene	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 14:22
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 14:22
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 14:22
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 14:22
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 14:22
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 14:22
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 14:22
Surr: 1,2-Dichloroethane-d4	*86.1*			**0**	*81-118*	*%REC*	*1*	*14-Dec-2020 14:22*
Surr: 4-Bromofluorobenzene	*94.4*			**0**	*85-114*	*%REC*	*1*	*14-Dec-2020 14:22*
Surr: Dibromofluoromethane	*88.3*			**0**	*80-119*	*%REC*	*1*	*14-Dec-2020 14:22*
Surr: Toluene-d8	*106*			**0**	*89-112*	*%REC*	*1*	*14-Dec-2020 14:22*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 28-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
Sample ID: 35AWW18_120120
Collection Date: 01-Dec-2020 11:55

ANALYTICAL REPORT
WorkOrder:HS20120090
Lab ID:HS20120090-07
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	14-Dec-2020 14:43
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 14:43
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	ug/L	1	14-Dec-2020 14:43
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 14:43
1,1-Dichloroethane	**3.6**		**0.20**	**0.50**	**1.0**	**ug/L**	1	14-Dec-2020 14:43
1,1-Dichloroethene	**22**		**0.20**	**0.50**	**1.0**	**ug/L**	1	14-Dec-2020 14:43
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	14-Dec-2020 14:43
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	14-Dec-2020 14:43
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	14-Dec-2020 14:43
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	14-Dec-2020 14:43
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 14:43
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 14:43
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 14:43
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	14-Dec-2020 14:43
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 14:43
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	14-Dec-2020 14:43
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	14-Dec-2020 14:43
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	14-Dec-2020 14:43
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 14:43
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	14-Dec-2020 14:43
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 14:43
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	14-Dec-2020 14:43
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 14:43
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	14-Dec-2020 14:43
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	14-Dec-2020 14:43
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 14:43
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	14-Dec-2020 14:43
Acetone	1.0	U	0.40	1.0	2.0	ug/L	1	14-Dec-2020 14:43
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 14:43
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	14-Dec-2020 14:43
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 14:43
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 14:43
Bromoform	0.50	U	0.40	0.50	1.0	ug/L	1	14-Dec-2020 14:43
Bromomethane	0.50	U	0.40	0.50	1.0	ug/L	1	14-Dec-2020 14:43
Carbon disulfide	1.0	U	0.60	1.0	2.0	ug/L	1	14-Dec-2020 14:43
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	ug/L	1	14-Dec-2020 14:43
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	14-Dec-2020 14:43
Chloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 14:43
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 14:43

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 28-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
Sample ID: 35AWW18_120120
Collection Date: 01-Dec-2020 11:55

ANALYTICAL REPORT
WorkOrder:HS20120090
Lab ID:HS20120090-07
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 14:43
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 14:43
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	14-Dec-2020 14:43
Dibromochloromethane	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 14:43
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 14:43
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	14-Dec-2020 14:43
Ethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 14:43
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	14-Dec-2020 14:43
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	14-Dec-2020 14:43
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	14-Dec-2020 14:43
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	14-Dec-2020 14:43
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	14-Dec-2020 14:43
n-Propylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 14:43
Naphthalene	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 14:43
o-Xylene	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 14:43
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 14:43
Styrene	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 14:43
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 14:43
Tetrachloroethene	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 14:43
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 14:43
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 14:43
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 14:43
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 14:43
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	14-Dec-2020 14:43
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 14:43
Surr: 1,2-Dichloroethane-d4	*86.6*			**0**	*81-118*	*%REC*	*1*	*14-Dec-2020 14:43*
Surr: 4-Bromofluorobenzene	*93.8*			**0**	*85-114*	*%REC*	*1*	*14-Dec-2020 14:43*
Surr: Dibromofluoromethane	*89.1*			**0**	*80-119*	*%REC*	*1*	*14-Dec-2020 14:43*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*1*	*14-Dec-2020 14:43*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 28-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
Sample ID: 35AWW18_120120_a
Collection Date: 01-Dec-2020 11:55

ANALYTICAL REPORT
WorkOrder:HS20120090
Lab ID:HS20120090-08
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 15:04
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 15:04
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	ug/L	1	14-Dec-2020 15:04
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 15:04
1,1-Dichloroethane	**3.5**		**0.20**	**0.50**	**1.0**	**ug/L**	1	14-Dec-2020 15:04
1,1-Dichloroethene	**22**		**0.20**	**0.50**	**1.0**	**ug/L**	1	14-Dec-2020 15:04
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 15:04
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	14-Dec-2020 15:04
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	14-Dec-2020 15:04
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	14-Dec-2020 15:04
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	14-Dec-2020 15:04
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 15:04
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 15:04
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	14-Dec-2020 15:04
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 15:04
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	14-Dec-2020 15:04
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 15:04
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	14-Dec-2020 15:04
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	14-Dec-2020 15:04
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	14-Dec-2020 15:04
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 15:04
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	14-Dec-2020 15:04
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	14-Dec-2020 15:04
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	14-Dec-2020 15:04
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	14-Dec-2020 15:04
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	14-Dec-2020 15:04
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	14-Dec-2020 15:04
Acetone	1.0	U	0.40	1.0	2.0	ug/L	1	14-Dec-2020 15:04
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 15:04
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	14-Dec-2020 15:04
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 15:04
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 15:04
Bromoform	0.50	U	0.40	0.50	1.0	ug/L	1	14-Dec-2020 15:04
Bromomethane	0.50	U	0.40	0.50	1.0	ug/L	1	14-Dec-2020 15:04
Carbon disulfide	1.0	U	0.60	1.0	2.0	ug/L	1	14-Dec-2020 15:04
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	ug/L	1	14-Dec-2020 15:04
Chlorobenzene	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 15:04
Chloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 15:04
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 15:04

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 28-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
Sample ID: 35AWW18_120120_a
Collection Date: 01-Dec-2020 11:55

ANALYTICAL REPORT
WorkOrder:HS20120090
Lab ID:HS20120090-08
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 15:04
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 15:04
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	14-Dec-2020 15:04
Dibromochloromethane	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 15:04
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 15:04
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	14-Dec-2020 15:04
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	14-Dec-2020 15:04
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	14-Dec-2020 15:04
Isopropylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 15:04
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	14-Dec-2020 15:04
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	14-Dec-2020 15:04
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	14-Dec-2020 15:04
n-Propylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 15:04
Naphthalene	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 15:04
o-Xylene	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 15:04
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 15:04
Styrene	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 15:04
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	14-Dec-2020 15:04
Tetrachloroethene	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 15:04
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 15:04
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 15:04
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 15:04
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 15:04
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	14-Dec-2020 15:04
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 15:04
Surr: 1,2-Dichloroethane-d4	*87.6*			**0**	*81-118*	*%REC*	*1*	*14-Dec-2020 15:04*
Surr: 4-Bromofluorobenzene	*91.9*			**0**	*85-114*	*%REC*	*1*	*14-Dec-2020 15:04*
Surr: Dibromofluoromethane	*88.0*			**0**	*80-119*	*%REC*	*1*	*14-Dec-2020 15:04*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*1*	*14-Dec-2020 15:04*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 28-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
Sample ID: 35AWW16_120120
Collection Date: 01-Dec-2020 12:40

ANALYTICAL REPORT
WorkOrder:HS20120090
Lab ID:HS20120090-09
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	14-Dec-2020 15:25
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 15:25
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	ug/L	1	14-Dec-2020 15:25
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 15:25
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 15:25
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 15:25
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	14-Dec-2020 15:25
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	14-Dec-2020 15:25
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	14-Dec-2020 15:25
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	14-Dec-2020 15:25
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 15:25
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 15:25
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 15:25
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	14-Dec-2020 15:25
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 15:25
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	14-Dec-2020 15:25
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	14-Dec-2020 15:25
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	14-Dec-2020 15:25
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 15:25
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	14-Dec-2020 15:25
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 15:25
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	14-Dec-2020 15:25
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 15:25
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	14-Dec-2020 15:25
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	14-Dec-2020 15:25
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 15:25
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	14-Dec-2020 15:25
Acetone	1.0	U	0.40	1.0	2.0	ug/L	1	14-Dec-2020 15:25
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 15:25
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	14-Dec-2020 15:25
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 15:25
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 15:25
Bromoform	0.50	U	0.40	0.50	1.0	ug/L	1	14-Dec-2020 15:25
Bromomethane	0.50	U	0.40	0.50	1.0	ug/L	1	14-Dec-2020 15:25
Carbon disulfide	1.0	U	0.60	1.0	2.0	ug/L	1	14-Dec-2020 15:25
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	ug/L	1	14-Dec-2020 15:25
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	14-Dec-2020 15:25
Chloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 15:25
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 15:25

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 28-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
Sample ID: 35AWW16_120120
Collection Date: 01-Dec-2020 12:40

ANALYTICAL REPORT
WorkOrder:HS20120090
Lab ID:HS20120090-09
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 15:25
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 15:25
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	14-Dec-2020 15:25
Dibromochloromethane	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 15:25
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 15:25
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 15:25
Ethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 15:25
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	14-Dec-2020 15:25
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	14-Dec-2020 15:25
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	14-Dec-2020 15:25
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	14-Dec-2020 15:25
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	14-Dec-2020 15:25
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	14-Dec-2020 15:25
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	14-Dec-2020 15:25
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	14-Dec-2020 15:25
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	14-Dec-2020 15:25
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	14-Dec-2020 15:25
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 15:25
Tetrachloroethene	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 15:25
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 15:25
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 15:25
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 15:25
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 15:25
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 15:25
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 15:25
Surr: 1,2-Dichloroethane-d4	*85.7*			**0**	*81-118*	*%REC*	*1*	*14-Dec-2020 15:25*
Surr: 4-Bromofluorobenzene	*97.0*			**0**	*85-114*	*%REC*	*1*	*14-Dec-2020 15:25*
Surr: Dibromofluoromethane	*90.0*			**0**	*80-119*	*%REC*	*1*	*14-Dec-2020 15:25*
Surr: Toluene-d8	*107*			**0**	*89-112*	*%REC*	*1*	*14-Dec-2020 15:25*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 28-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
Sample ID: 35AWW15_120120
Collection Date: 01-Dec-2020 13:20

ANALYTICAL REPORT
WorkOrder:HS20120090
Lab ID:HS20120090-10
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 15:46
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 15:46
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	ug/L	1	14-Dec-2020 15:46
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 15:46
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 15:46
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 15:46
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 15:46
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	14-Dec-2020 15:46
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	14-Dec-2020 15:46
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	14-Dec-2020 15:46
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	14-Dec-2020 15:46
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 15:46
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 15:46
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	14-Dec-2020 15:46
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 15:46
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	14-Dec-2020 15:46
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 15:46
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	14-Dec-2020 15:46
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	14-Dec-2020 15:46
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	14-Dec-2020 15:46
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 15:46
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	14-Dec-2020 15:46
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	14-Dec-2020 15:46
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	14-Dec-2020 15:46
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	14-Dec-2020 15:46
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	14-Dec-2020 15:46
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	14-Dec-2020 15:46
Acetone	1.0	U	0.40	1.0	2.0	ug/L	1	14-Dec-2020 15:46
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 15:46
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	14-Dec-2020 15:46
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 15:46
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 15:46
Bromoform	0.50	U	0.40	0.50	1.0	ug/L	1	14-Dec-2020 15:46
Bromomethane	0.50	U	0.40	0.50	1.0	ug/L	1	14-Dec-2020 15:46
Carbon disulfide	1.0	U	0.60	1.0	2.0	ug/L	1	14-Dec-2020 15:46
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	ug/L	1	14-Dec-2020 15:46
Chlorobenzene	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 15:46
Chloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 15:46
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 15:46

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 28-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
Sample ID: 35AWW15_120120
Collection Date: 01-Dec-2020 13:20

ANALYTICAL REPORT
WorkOrder:HS20120090
Lab ID:HS20120090-10
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 15:46
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 15:46
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	14-Dec-2020 15:46
Dibromochloromethane	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 15:46
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 15:46
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	14-Dec-2020 15:46
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	14-Dec-2020 15:46
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	14-Dec-2020 15:46
Isopropylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 15:46
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	14-Dec-2020 15:46
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	14-Dec-2020 15:46
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	14-Dec-2020 15:46
n-Propylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 15:46
Naphthalene	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 15:46
o-Xylene	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 15:46
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 15:46
Styrene	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 15:46
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 15:46
Tetrachloroethene	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 15:46
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 15:46
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 15:46
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 15:46
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 15:46
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	14-Dec-2020 15:46
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 15:46
Surr: 1,2-Dichloroethane-d4	*86.0*			**0**	*81-118*	*%REC*	*1*	*14-Dec-2020 15:46*
Surr: 4-Bromofluorobenzene	*93.4*			**0**	*85-114*	*%REC*	*1*	*14-Dec-2020 15:46*
Surr: Dibromofluoromethane	*88.0*			**0**	*80-119*	*%REC*	*1*	*14-Dec-2020 15:46*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*1*	*14-Dec-2020 15:46*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 28-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
Sample ID: Trip Blank
Collection Date: 01-Dec-2020 00:00

ANALYTICAL REPORT
WorkOrder:HS20120090
Lab ID:HS20120090-11
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 13:19
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 13:19
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	ug/L	1	14-Dec-2020 13:19
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 13:19
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 13:19
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 13:19
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 13:19
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	14-Dec-2020 13:19
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	14-Dec-2020 13:19
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	14-Dec-2020 13:19
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	14-Dec-2020 13:19
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 13:19
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 13:19
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	14-Dec-2020 13:19
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 13:19
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	14-Dec-2020 13:19
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 13:19
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	14-Dec-2020 13:19
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	14-Dec-2020 13:19
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	14-Dec-2020 13:19
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 13:19
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	14-Dec-2020 13:19
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	14-Dec-2020 13:19
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	14-Dec-2020 13:19
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	14-Dec-2020 13:19
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	14-Dec-2020 13:19
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	14-Dec-2020 13:19
Acetone	1.0	U	0.40	1.0	2.0	ug/L	1	14-Dec-2020 13:19
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 13:19
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	14-Dec-2020 13:19
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 13:19
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 13:19
Bromoform	0.50	U	0.40	0.50	1.0	ug/L	1	14-Dec-2020 13:19
Bromomethane	0.50	U	0.40	0.50	1.0	ug/L	1	14-Dec-2020 13:19
Carbon disulfide	1.0	U	0.60	1.0	2.0	ug/L	1	14-Dec-2020 13:19
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	ug/L	1	14-Dec-2020 13:19
Chlorobenzene	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 13:19
Chloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 13:19
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 13:19

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 28-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
Sample ID: Trip Blank
Collection Date: 01-Dec-2020 00:00

ANALYTICAL REPORT
WorkOrder:HS20120090
Lab ID:HS20120090-11
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 13:19
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 13:19
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	14-Dec-2020 13:19
Dibromochloromethane	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 13:19
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 13:19
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 13:19
Ethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 13:19
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	14-Dec-2020 13:19
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	14-Dec-2020 13:19
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	14-Dec-2020 13:19
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	14-Dec-2020 13:19
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	14-Dec-2020 13:19
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	14-Dec-2020 13:19
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	14-Dec-2020 13:19
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	14-Dec-2020 13:19
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	14-Dec-2020 13:19
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	14-Dec-2020 13:19
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 13:19
Tetrachloroethene	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 13:19
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 13:19
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 13:19
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 13:19
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 13:19
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	14-Dec-2020 13:19
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	14-Dec-2020 13:19
Surr: 1,2-Dichloroethane-d4	*84.9*			**0**	*81-118*	*%REC*	*1*	*14-Dec-2020 13:19*
Surr: 4-Bromofluorobenzene	*93.2*			**0**	*85-114*	*%REC*	*1*	*14-Dec-2020 13:19*
Surr: Dibromofluoromethane	*85.4*			**0**	*80-119*	*%REC*	*1*	*14-Dec-2020 13:19*
Surr: Toluene-d8	*106*			**0**	*89-112*	*%REC*	*1*	*14-Dec-2020 13:19*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 28-Dec-20

Weight / Prep Log

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
WorkOrder: HS20120090

Batch ID: 160306 **Start Date:** 03 Dec 2020 11:00 **End Date:** 03 Dec 2020 15:00
Method: WATER - SW3010A **Prep Code:** 3010A

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS20120090-01		10 (mL)	10 (mL)	1
HS20120090-02		10 (mL)	10 (mL)	1

ALS Houston, US Date: 28-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
WorkOrder: HS20120090

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: 160306 (0)	**Test Name :** METALS BY ICPMS BY SW6020A				**Matrix:** Groundwater	
HS20120090-01	03WW01_120120	01 Dec 2020 07:20		03 Dec 2020 15:00	10 Dec 2020 16:44	1
HS20120090-02	35AWW08_120120	01 Dec 2020 08:20		03 Dec 2020 15:00	10 Dec 2020 16:46	1
Batch ID: R374246 (0)	**Test Name :** ANIONS BY SW9056A				**Matrix:** Groundwater	
HS20120090-01	03WW01_120120	01 Dec 2020 07:20			09 Dec 2020 02:04	50
HS20120090-02	35AWW08_120120	01 Dec 2020 08:20			09 Dec 2020 02:59	200
HS20120090-03	35AWW11_120120	01 Dec 2020 09:15			09 Dec 2020 03:17	200
HS20120090-04	35AWW11_120120_a	01 Dec 2020 09:15			09 Dec 2020 03:35	200
HS20120090-05	35AWW06_120120	01 Dec 2020 10:20			09 Dec 2020 03:53	50
Batch ID: R374294 (0)	**Test Name :** ANIONS BY SW9056A				**Matrix:** Groundwater	
HS20120090-01	03WW01_120120	01 Dec 2020 07:20			03 Dec 2020 06:47	2
HS20120090-02	35AWW08_120120	01 Dec 2020 08:20			03 Dec 2020 07:06	5
HS20120090-03	35AWW11_120120	01 Dec 2020 09:15			03 Dec 2020 07:24	5
HS20120090-04	35AWW11_120120_a	01 Dec 2020 09:15			03 Dec 2020 08:18	5
HS20120090-05	35AWW06_120120	01 Dec 2020 10:20			03 Dec 2020 08:36	2
Batch ID: R374299 (0)	**Test Name :** SUBCONTRACT ANALYSIS - DHC/DHB				**Matrix:** Groundwater	
HS20120090-01	03WW01_120120	01 Dec 2020 07:20			09 Dec 2020 17:36	1
HS20120090-02	35AWW08_120120	01 Dec 2020 08:20			09 Dec 2020 17:36	1
HS20120090-03	35AWW11_120120	01 Dec 2020 09:15			09 Dec 2020 17:36	1
HS20120090-05	35AWW06_120120	01 Dec 2020 10:20			09 Dec 2020 17:36	1
Batch ID: R374536 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Groundwater	
HS20120090-01	03WW01_120120	01 Dec 2020 07:20			12 Dec 2020 23:36	10
HS20120090-02	35AWW08_120120	01 Dec 2020 08:20			12 Dec 2020 23:57	10
HS20120090-03	35AWW11_120120	01 Dec 2020 09:15			13 Dec 2020 00:18	1
HS20120090-04	35AWW11_120120_a	01 Dec 2020 09:15			13 Dec 2020 00:39	1
HS20120090-05	35AWW06_120120	01 Dec 2020 10:20			13 Dec 2020 01:00	1
Batch ID: R374619 (0)	**Test Name :** SUBCONTRACT ANALYSIS - RSK				**Matrix:** Groundwater	
HS20120090-01	03WW01_120120	01 Dec 2020 07:20			15 Dec 2020 09:48	1
HS20120090-02	35AWW08_120120	01 Dec 2020 08:20			15 Dec 2020 09:48	1
HS20120090-03	35AWW11_120120	01 Dec 2020 09:15			15 Dec 2020 09:48	1
HS20120090-04	35AWW11_120120_a	01 Dec 2020 09:15			15 Dec 2020 09:48	1
HS20120090-05	35AWW06_120120	01 Dec 2020 10:20			15 Dec 2020 09:48	1
Batch ID: R374634 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Water	
HS20120090-11	Trip Blank	01 Dec 2020 00:00			14 Dec 2020 13:19	1

ALS Houston, US Date: 28-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
WorkOrder: HS20120090

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R374634 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Groundwater	
HS20120090-06	35AWW17_120120	01 Dec 2020 11:10			14 Dec 2020 14:22	1
HS20120090-07	35AWW18_120120	01 Dec 2020 11:55			14 Dec 2020 14:43	1
HS20120090-08	35AWW18_120120_a	01 Dec 2020 11:55			14 Dec 2020 15:04	1
HS20120090-09	35AWW16_120120	01 Dec 2020 12:40			14 Dec 2020 15:25	1
HS20120090-10	35AWW15_120120	01 Dec 2020 13:20			14 Dec 2020 15:46	1
Batch ID: R374903 (0)	**Test Name :** SUBCONTRACT ANALYSIS - TOC ANALYSIS				**Matrix:** Groundwater	
HS20120090-01	03WW01_120120	01 Dec 2020 07:20			18 Dec 2020 10:40	1
HS20120090-02	35AWW08_120120	01 Dec 2020 08:20			18 Dec 2020 10:40	1
HS20120090-03	35AWW11_120120	01 Dec 2020 09:15			18 Dec 2020 10:40	1
HS20120090-04	35AWW11_120120_a	01 Dec 2020 09:15			18 Dec 2020 10:40	1
HS20120090-05	35AWW06_120120	01 Dec 2020 10:20			18 Dec 2020 10:40	1
Batch ID: R375421 (0)	**Test Name :** SUBCONTRACT ANALYSIS - VOLATILE FATTY ACIDS				**Matrix:** Groundwater	
HS20120090-01	03WW01_120120	01 Dec 2020 07:20			28 Dec 2020 11:10	1
HS20120090-02	35AWW08_120120	01 Dec 2020 08:20			28 Dec 2020 11:10	1
HS20120090-03	35AWW11_120120	01 Dec 2020 09:15			28 Dec 2020 11:10	1
HS20120090-04	35AWW11_120120_a	01 Dec 2020 09:15			28 Dec 2020 11:10	1
HS20120090-05	35AWW06_120120	01 Dec 2020 10:20			28 Dec 2020 11:10	1

ALS Houston, US Date: 28-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
WorkOrder: HS20120090

QC BATCH REPORT

Batch ID: 160306 (0) **Instrument: ICPMS04** **Method: METALS BY ICPMS BY SW6020A**

MBLK Sample ID: **MBLK-160306** Units: **mg/L** Analysis Date: **10-Dec-2020 16:18**
Client ID: Run ID: **ICPMS04_374333** SeqNo: **5873677** PrepDate: **03-Dec-2020** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.00100	0.00500								U

LCS Sample ID: **LCS-160306** Units: **mg/L** Analysis Date: **10-Dec-2020 16:06**
Client ID: Run ID: **ICPMS04_374333** SeqNo: **5873671** PrepDate: **03-Dec-2020** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.05306	0.00500	0.05	0	106	84 - 116				

MS Sample ID: **HS20111258-01MS** Units: **mg/L** Analysis Date: **10-Dec-2020 16:12**
Client ID: Run ID: **ICPMS04_374333** SeqNo: **5873674** PrepDate: **03-Dec-2020** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.0471	0.00500	0.05	0.000811	92.6	84 - 116				

MSD Sample ID: **HS20111258-01MSD** Units: **mg/L** Analysis Date: **10-Dec-2020 16:14**
Client ID: Run ID: **ICPMS04_374333** SeqNo: **5873675** PrepDate: **03-Dec-2020** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.04723	0.00500	0.05	0.000811	92.8	84 - 116	0.0471	0.29	20	

PDS Sample ID: **HS20111258-01PDS** Units: **mg/L** Analysis Date: **10-Dec-2020 16:16**
Client ID: Run ID: **ICPMS04_374333** SeqNo: **5873676** PrepDate: **03-Dec-2020** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.1134	0.00500	0.1	0.000811	113	80 - 120				

SD Sample ID: **HS20111258-01SD** Units: **mg/L** Analysis Date: **10-Dec-2020 16:10**
Client ID: Run ID: **ICPMS04_374333** SeqNo: **5873820** PrepDate: **03-Dec-2020** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Arsenic	0.00500	0.0250					0.000811	0	10	U

The following samples were analyzed in this batch: HS20120090-01 HS20120090-02

ALS Houston, US Date: 28-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
WorkOrder: HS20120090

QC BATCH REPORT

Batch ID: R374536 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MBLK Sample ID: **VBLKW-201212** Units: **ug/L** Analysis Date: **12-Dec-2020 16:55**
Client ID: Run ID: **VOA6_374536** SeqNo: **5878412** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	0.50	1.0								U
1,1,1-Trichloroethane	0.50	1.0								U
1,1,2,2-Tetrachloroethane	0.50	1.0								U
1,1,2-Trichloroethane	0.50	1.0								U
1,1-Dichloroethane	0.50	1.0								U
1,1-Dichloroethene	0.50	1.0								U
1,1-Dichloropropene	0.50	1.0								U
1,2,3-Trichlorobenzene	1.0	1.0								U
1,2,3-Trichloropropane	1.0	1.0								U
1,2,4-Trichlorobenzene	1.0	1.0								U
1,2,4-Trimethylbenzene	1.0	1.0								U
1,2-Dibromo-3-chloropropane	0.50	1.0								U
1,2-Dibromoethane	0.50	1.0								U
1,2-Dichlorobenzene	1.0	1.0								U
1,2-Dichloroethane	0.50	1.0								U
1,2-Dichloropropane	0.50	1.0								U
1,3,5-Trimethylbenzene	0.50	1.0								U
1,3-Dichlorobenzene	1.0	1.0								U
1,3-Dichloropropane	1.0	1.0								U
1,4-Dichlorobenzene	1.0	1.0								U
2,2-Dichloropropane	0.50	1.0								U
2-Butanone	1.0	2.0								U
2-Chlorotoluene	1.0	1.0								U
2-Hexanone	2.0	2.0								U
4-Chlorotoluene	1.0	1.0								U
4-Isopropyltoluene	1.0	1.0								U
4-Methyl-2-pentanone	2.0	2.0								U
Acetone	1.0	2.0								U
Benzene	0.50	1.0								U
Bromobenzene	1.0	1.0								U
Bromochloromethane	0.50	1.0								U
Bromodichloromethane	0.50	1.0								U
Bromoform	0.50	1.0								U
Bromomethane	0.50	1.0								U

ALS Houston, US Date: 28-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
WorkOrder: HS20120090

QC BATCH REPORT

Batch ID: R374536 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-201212** Units: **ug/L** Analysis Date: **12-Dec-2020 16:55**
Client ID: Run ID: **VOA6_374536** SeqNo: **5878412** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	1.0	2.0								U
Carbon tetrachloride	0.50	1.0								U
Chlorobenzene	0.50	1.0								U
Chloroethane	0.50	1.0								U
Chloroform	0.50	1.0								U
Chloromethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
cis-1,3-Dichloropropene	0.50	1.0								U
Dibromochloromethane	0.50	1.0								U
Dibromomethane	0.50	1.0								U
Dichlorodifluoromethane	0.50	1.0								U
Ethylbenzene	1.0	1.0								U
Hexachlorobutadiene	1.0	1.0								U
Isopropylbenzene	0.50	1.0								U
m,p-Xylene	1.0	2.0								U
Methylene chloride	1.0	2.0								U
Naphthalene	0.50	1.0								U
n-Butylbenzene	1.0	1.0								U
n-Propylbenzene	1.0	1.0								U
o-Xylene	1.0	1.0								U
sec-Butylbenzene	0.50	1.0								U
Styrene	1.0	1.0								U
tert-Butylbenzene	1.0	1.0								U
Tetrachloroethene	0.50	1.0								U
Toluene	0.50	1.0								U
trans-1,2-Dichloroethene	0.50	1.0								U
trans-1,3-Dichloropropene	0.50	1.0								U
Trichloroethene	0.50	1.0								U
Trichlorofluoromethane	0.50	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*43.43*	*1.0*	*50*	*0*	*86.9*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*45.6*	*1.0*	*50*	*0*	*91.2*	*85 - 114*				
Surr: Dibromofluoromethane	*43.45*	*1.0*	*50*	*0*	*86.9*	*80 - 119*				
Surr: Toluene-d8	*53.92*	*1.0*	*50*	*0*	*108*	*89 - 112*				

ALS Houston, US Date: 28-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
WorkOrder: HS20120090

QC BATCH REPORT

Batch ID: R374536 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-201212** Units: **ug/L** Analysis Date: **12-Dec-2020 16:13**
Client ID: Run ID: **VOA6_374536** SeqNo: **5878411** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	17.99	1.0	20	0	90.0	78 - 124				
1,1,1-Trichloroethane	18.6	1.0	20	0	93.0	74 - 131				
1,1,2,2-Tetrachloroethane	19.09	1.0	20	0	95.4	71 - 121				
1,1,2-Trichloroethane	18.87	1.0	20	0	94.3	80 - 119				
1,1-Dichloroethane	18.24	1.0	20	0	91.2	77 - 125				
1,1-Dichloroethene	18.25	1.0	20	0	91.3	71 - 131				
1,1-Dichloropropene	17.57	1.0	20	0	87.8	78 - 125				
1,2,3-Trichlorobenzene	20.86	1.0	20	0	104	69 - 129				
1,2,3-Trichloropropane	18.85	1.0	20	0	94.2	73 - 122				
1,2,4-Trichlorobenzene	19.53	1.0	20	0	97.7	69 - 130				
1,2,4-Trimethylbenzene	17.53	1.0	20	0	87.6	76 - 124				
1,2-Dibromo-3-chloropropane	18.61	1.0	20	0	93.0	62 - 128				
1,2-Dibromoethane	17.98	1.0	20	0	89.9	77 - 121				
1,2-Dichlorobenzene	17.87	1.0	20	0	89.4	80 - 119				
1,2-Dichloroethane	18.42	1.0	20	0	92.1	73 - 128				
1,2-Dichloropropane	18.44	1.0	20	0	92.2	78 - 122				
1,3,5-Trimethylbenzene	17.01	1.0	20	0	85.0	75 - 124				
1,3-Dichlorobenzene	17.46	1.0	20	0	87.3	80 - 119				
1,3-Dichloropropane	18.87	1.0	20	0	94.4	80 - 119				
1,4-Dichlorobenzene	18.01	1.0	20	0	90.0	79 - 118				
2,2-Dichloropropane	19.2	1.0	20	0	96.0	60 - 139				
2-Butanone	39.45	2.0	40	0	98.6	56 - 143				
2-Chlorotoluene	18.32	1.0	20	0	91.6	79 - 122				
2-Hexanone	35.07	2.0	40	0	87.7	57 - 139				
4-Chlorotoluene	17.92	1.0	20	0	89.6	78 - 122				
4-Isopropyltoluene	16.69	1.0	20	0	83.5	77 - 127				
4-Methyl-2-pentanone	35.63	2.0	40	0	89.1	67 - 130				
Acetone	44.51	2.0	40	0	111	39 - 160				
Benzene	18.13	1.0	20	0	90.6	79 - 120				
Bromobenzene	17.8	1.0	20	0	89.0	80 - 120				
Bromochloromethane	18.8	1.0	20	0	94.0	78 - 123				
Bromodichloromethane	18.98	1.0	20	0	94.9	79 - 125				
Bromoform	18.96	1.0	20	0	94.8	66 - 130				
Bromomethane	21.51	1.0	20	0	108	53 - 141				

ALS Houston, US Date: 28-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
WorkOrder: HS20120090

QC BATCH REPORT

Batch ID: R374536 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

LCS Sample ID: **VLCSW-201212** Units: **ug/L** Analysis Date: **12-Dec-2020 16:13**
Client ID: Run ID: **VOA6_374536** SeqNo: **5878411** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	37.96	2.0	40	0	94.9	64 - 133				
Carbon tetrachloride	18.44	1.0	20	0	92.2	72 - 136				
Chlorobenzene	17.86	1.0	20	0	89.3	82 - 118				
Chloroethane	18.46	1.0	20	0	92.3	60 - 138				
Chloroform	18.58	1.0	20	0	92.9	79 - 124				
Chloromethane	17.33	1.0	20	0	86.6	50 - 139				
cis-1,2-Dichloroethene	18.65	1.0	20	0	93.3	78 - 123				
cis-1,3-Dichloropropene	18.87	1.0	20	0	94.4	75 - 124				
Dibromochloromethane	18.17	1.0	20	0	90.9	74 - 126				
Dibromomethane	19.29	1.0	20	0	96.5	79 - 123				
Dichlorodifluoromethane	18.95	1.0	20	0	94.7	32 - 152				
Ethylbenzene	18.38	1.0	20	0	91.9	79 - 121				
Hexachlorobutadiene	19.66	1.0	20	0	98.3	66 - 134				
Isopropylbenzene	17.26	1.0	20	0	86.3	72 - 131				
m,p-Xylene	36.22	2.0	40	0	90.5	80 - 121				
Methylene chloride	18.24	2.0	20	0	91.2	74 - 124				
Naphthalene	19.71	1.0	20	0	98.5	61 - 128				
n-Butylbenzene	18.04	1.0	20	0	90.2	75 - 128				
n-Propylbenzene	17.51	1.0	20	0	87.6	76 - 126				
o-Xylene	17.5	1.0	20	0	87.5	78 - 122				
sec-Butylbenzene	16.99	1.0	20	0	84.9	77 - 126				
Styrene	18.19	1.0	20	0	90.9	78 - 123				
tert-Butylbenzene	17.05	1.0	20	0	85.3	78 - 124				
Tetrachloroethene	17.7	1.0	20	0	88.5	74 - 129				
Toluene	18.27	1.0	20	0	91.4	80 - 121				
trans-1,2-Dichloroethene	18.49	1.0	20	0	92.5	75 - 124				
trans-1,3-Dichloropropene	18.94	1.0	20	0	94.7	73 - 127				
Trichloroethene	17.24	1.0	20	0	86.2	79 - 123				
Trichlorofluoromethane	18.25	1.0	20	0	91.3	65 - 141				
Vinyl chloride	19.13	1.0	20	0	95.7	58 - 137				
Surr: 1,2-Dichloroethane-d4	*48.02*	*1.0*	*50*	*0*	*96.0*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*49.84*	*1.0*	*50*	*0*	*99.7*	*85 - 114*				
Surr: Dibromofluoromethane	*47.9*	*1.0*	*50*	*0*	*95.8*	*80 - 119*				
Surr: Toluene-d8	*48.27*	*1.0*	*50*	*0*	*96.5*	*89 - 112*				

ALS Houston, US Date: 28-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
WorkOrder: HS20120090

QC BATCH REPORT

Batch ID: R374536 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MS Sample ID: **HS20120448-34MS** Units: **ug/L** Analysis Date: **12-Dec-2020 18:41**
Client ID: Run ID: **VOA6_374536** SeqNo: **5878417** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	16.02	1.0	20	0	80.1	78 - 124				
1,1,1-Trichloroethane	14.66	1.0	20	0	73.3	74 - 131				S
1,1,2,2-Tetrachloroethane	17.93	1.0	20	0	89.6	71 - 121				
1,1,2-Trichloroethane	16.61	1.0	20	0	83.1	80 - 119				
1,1-Dichloroethane	13.71	1.0	20	0	68.6	77 - 125				S
1,1-Dichloroethene	13.66	1.0	20	0	68.3	71 - 131				S
1,1-Dichloropropene	15.21	1.0	20	0	76.0	78 - 125				S
1,2,3-Trichlorobenzene	17.54	1.0	20	0	87.7	69 - 129				
1,2,3-Trichloropropane	17.67	1.0	20	0	88.3	73 - 122				
1,2,4-Trichlorobenzene	16.53	1.0	20	0	82.7	69 - 130				
1,2,4-Trimethylbenzene	16.42	1.0	20	0	82.1	76 - 124				
1,2-Dibromo-3-chloropropane	15.96	1.0	20	0	79.8	62 - 128				
1,2-Dibromoethane	16.09	1.0	20	0	80.5	77 - 121				
1,2-Dichlorobenzene	16.22	1.0	20	0	81.1	80 - 119				
1,2-Dichloroethane	15.59	1.0	20	0	77.9	73 - 128				
1,2-Dichloropropane	15.51	1.0	20	0	77.5	78 - 122				S
1,3,5-Trimethylbenzene	16.19	1.0	20	0	80.9	75 - 124				
1,3-Dichlorobenzene	16.07	1.0	20	0	80.3	80 - 119				
1,3-Dichloropropane	16.26	1.0	20	0	81.3	80 - 119				
1,4-Dichlorobenzene	16.2	1.0	20	0	81.0	79 - 118				
2,2-Dichloropropane	14.6	1.0	20	0	73.0	60 - 139				
2-Butanone	32.38	2.0	40	0	81.0	56 - 143				
2-Chlorotoluene	17.35	1.0	20	0	86.7	79 - 122				
2-Hexanone	31.35	2.0	40	0	78.4	57 - 139				
4-Chlorotoluene	16.41	1.0	20	0	82.1	78 - 122				
4-Isopropyltoluene	15.55	1.0	20	0	77.8	77 - 127				
4-Methyl-2-pentanone	30.47	2.0	40	0	76.2	67 - 130				
Acetone	36.89	2.0	40	0	92.2	39 - 160				
Benzene	15.31	1.0	20	0	76.5	79 - 120				S
Bromobenzene	16.37	1.0	20	0	81.8	80 - 120				
Bromochloromethane	14.68	1.0	20	0	73.4	78 - 123				S
Bromodichloromethane	15.6	1.0	20	0	78.0	79 - 125				S
Bromoform	16.29	1.0	20	0	81.4	66 - 130				
Bromomethane	17.89	1.0	20	0	89.4	53 - 141				

ALS Houston, US Date: 28-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
WorkOrder: HS20120090

QC BATCH REPORT

Batch ID: R374536 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS20120448-34MS** Units: **ug/L** Analysis Date: **12-Dec-2020 18:41**
Client ID: Run ID: **VOA6_374536** SeqNo: **5878417** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	27.95	2.0	40	0	69.9	64 - 133				
Carbon tetrachloride	15.93	1.0	20	0.951	74.9	72 - 136				
Chlorobenzene	15.76	1.0	20	0	78.8	82 - 118				S
Chloroethane	14.35	1.0	20	0	71.7	60 - 138				
Chloroform	15.43	1.0	20	1.921	67.5	79 - 124				S
Chloromethane	13.12	1.0	20	0	65.6	50 - 139				
cis-1,2-Dichloroethene	40.7	1.0	20	68.84	-141	78 - 123				S
cis-1,3-Dichloropropene	15.41	1.0	20	0	77.0	75 - 124				
Dibromochloromethane	15.97	1.0	20	0	79.9	74 - 126				
Dibromomethane	15.8	1.0	20	0	79.0	79 - 123				
Dichlorodifluoromethane	13.86	1.0	20	0	69.3	32 - 152				
Ethylbenzene	16.4	1.0	20	0	82.0	79 - 121				
Hexachlorobutadiene	17.71	1.0	20	0	88.6	66 - 134				
Isopropylbenzene	15.64	1.0	20	0	78.2	72 - 131				
m,p-Xylene	31.39	2.0	40	0	78.5	80 - 121				S
Methylene chloride	13.91	2.0	20	0	69.5	74 - 124				S
Naphthalene	15.6	1.0	20	0	78.0	61 - 128				
n-Butylbenzene	17.04	1.0	20	0	85.2	75 - 128				
n-Propylbenzene	16.45	1.0	20	0	82.3	76 - 126				
o-Xylene	15.28	1.0	20	0	76.4	78 - 122				S
sec-Butylbenzene	16.29	1.0	20	0	81.4	77 - 126				
Styrene	15.63	1.0	20	0	78.2	78 - 123				
tert-Butylbenzene	16.52	1.0	20	0	82.6	78 - 124				
Tetrachloroethene	15.92	1.0	20	0	79.6	74 - 129				
Toluene	16.47	1.0	20	0	82.3	80 - 121				
trans-1,2-Dichloroethene	14.59	1.0	20	0.6414	69.7	75 - 124				S
trans-1,3-Dichloropropene	15.63	1.0	20	0	78.2	73 - 127				
Trichloroethene	39.39	1.0	20	135.7	-482	79 - 123				SO
Trichlorofluoromethane	14.65	1.0	20	0	73.3	65 - 141				
Vinyl chloride	13.54	1.0	20	0	67.7	58 - 137				
Surr: 1,2-Dichloroethane-d4	*43.93*	*1.0*	*50*	*0*	*87.9*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*50.24*	*1.0*	*50*	*0*	*100*	*85 - 114*				
Surr: Dibromofluoromethane	*45.18*	*1.0*	*50*	*0*	*90.4*	*80 - 119*				
Surr: Toluene-d8	*52*	*1.0*	*50*	*0*	*104*	*89 - 112*				

ALS Houston, US Date: 28-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
WorkOrder: HS20120090

QC BATCH REPORT

Batch ID: R374536 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS20120448-34MSD** Units: **ug/L** Analysis Date: **12-Dec-2020 19:02**
Client ID: Run ID: **VOA6_374536** SeqNo: **5878418** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	15.22	1.0	20	0	76.1	78 - 124	16.02	5.13	20	S
1,1,1-Trichloroethane	14.27	1.0	20	0	71.3	74 - 131	14.66	2.68	20	S
1,1,2,2-Tetrachloroethane	16.64	1.0	20	0	83.2	71 - 121	17.93	7.46	20	
1,1,2-Trichloroethane	16.1	1.0	20	0	80.5	80 - 119	16.61	3.16	20	
1,1-Dichloroethane	13.28	1.0	20	0	66.4	77 - 125	13.71	3.18	20	S
1,1-Dichloroethene	13.27	1.0	20	0	66.4	71 - 131	13.66	2.87	20	S
1,1-Dichloropropene	14.59	1.0	20	0	72.9	78 - 125	15.21	4.15	20	S
1,2,3-Trichlorobenzene	19.26	1.0	20	0	96.3	69 - 129	17.54	9.32	20	
1,2,3-Trichloropropane	16.73	1.0	20	0	83.6	73 - 122	17.67	5.46	20	
1,2,4-Trichlorobenzene	17.76	1.0	20	0	88.8	69 - 130	16.53	7.18	20	
1,2,4-Trimethylbenzene	15.05	1.0	20	0	75.2	76 - 124	16.42	8.74	20	S
1,2-Dibromo-3-chloropropane	16.35	1.0	20	0	81.8	62 - 128	15.96	2.41	20	
1,2-Dibromoethane	16.07	1.0	20	0	80.4	77 - 121	16.09	0.105	20	
1,2-Dichlorobenzene	15.01	1.0	20	0	75.1	80 - 119	16.22	7.71	20	S
1,2-Dichloroethane	15.03	1.0	20	0	75.1	73 - 128	15.59	3.65	20	
1,2-Dichloropropane	14.57	1.0	20	0	72.8	78 - 122	15.51	6.27	20	S
1,3,5-Trimethylbenzene	14.65	1.0	20	0	73.3	75 - 124	16.19	9.94	20	S
1,3-Dichlorobenzene	14.86	1.0	20	0	74.3	80 - 119	16.07	7.81	20	S
1,3-Dichloropropane	15.98	1.0	20	0	79.9	80 - 119	16.26	1.73	20	S
1,4-Dichlorobenzene	15.46	1.0	20	0	77.3	79 - 118	16.2	4.67	20	S
2,2-Dichloropropane	13.96	1.0	20	0	69.8	60 - 139	14.6	4.47	20	
2-Butanone	30.93	2.0	40	0	77.3	56 - 143	32.38	4.57	20	
2-Chlorotoluene	15.76	1.0	20	0	78.8	79 - 122	17.35	9.62	20	S
2-Hexanone	33.6	2.0	40	0	84.0	57 - 139	31.35	6.92	20	
4-Chlorotoluene	14.75	1.0	20	0	73.8	78 - 122	16.41	10.6	20	S
4-Isopropyltoluene	14.36	1.0	20	0	71.8	77 - 127	15.55	7.95	20	S
4-Methyl-2-pentanone	30.83	2.0	40	0	77.1	67 - 130	30.47	1.16	20	
Acetone	37.4	2.0	40	0	93.5	39 - 160	36.89	1.37	20	
Benzene	14.59	1.0	20	0	73.0	79 - 120	15.31	4.8	20	S
Bromobenzene	14.97	1.0	20	0	74.8	80 - 120	16.37	8.95	20	S
Bromochloromethane	13.9	1.0	20	0	69.5	78 - 123	14.68	5.46	20	S
Bromodichloromethane	15.5	1.0	20	0	77.5	79 - 125	15.6	0.648	20	S
Bromoform	16.05	1.0	20	0	80.2	66 - 130	16.29	1.5	20	
Bromomethane	18.09	1.0	20	0	90.5	53 - 141	17.89	1.14	20	

ALS Houston, US Date: 28-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
WorkOrder: HS20120090

QC BATCH REPORT

Batch ID: R374536 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS20120448-34MSD** Units: **ug/L** Analysis Date: **12-Dec-2020 19:02**
Client ID: Run ID: **VOA6_374536** SeqNo: **5878418** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Carbon disulfide	26.99	2.0	40	0	67.5	64 - 133	27.95	3.48	20	
Carbon tetrachloride	14.87	1.0	20	0.951	69.6	72 - 136	15.93	6.86	20	S
Chlorobenzene	14.77	1.0	20	0	73.8	82 - 118	15.76	6.47	20	S
Chloroethane	13.63	1.0	20	0	68.1	60 - 138	14.35	5.14	20	
Chloroform	14.96	1.0	20	1.921	65.2	79 - 124	15.43	3.06	20	S
Chloromethane	13.28	1.0	20	0	66.4	50 - 139	13.12	1.24	20	
cis-1,2-Dichloroethene	39.06	1.0	20	68.84	-149	78 - 123	40.7	4.1	20	S
cis-1,3-Dichloropropene	14.86	1.0	20	0	74.3	75 - 124	15.41	3.62	20	S
Dibromochloromethane	15.78	1.0	20	0	78.9	74 - 126	15.97	1.22	20	
Dibromomethane	16.03	1.0	20	0	80.1	79 - 123	15.8	1.39	20	
Dichlorodifluoromethane	13.94	1.0	20	0	69.7	32 - 152	13.86	0.613	20	
Ethylbenzene	15.3	1.0	20	0	76.5	79 - 121	16.4	6.94	20	S
Hexachlorobutadiene	16.95	1.0	20	0	84.8	66 - 134	17.71	4.37	20	
Isopropylbenzene	15.16	1.0	20	0	75.8	72 - 131	15.64	3.12	20	
m,p-Xylene	29.57	2.0	40	0	73.9	80 - 121	31.39	5.96	20	S
Methylene chloride	13.57	2.0	20	0	67.9	74 - 124	13.91	2.44	20	S
Naphthalene	17.9	1.0	20	0	89.5	61 - 128	15.6	13.8	20	
n-Butylbenzene	15.67	1.0	20	0	78.4	75 - 128	17.04	8.37	20	
n-Propylbenzene	15.01	1.0	20	0	75.0	76 - 126	16.45	9.18	20	S
o-Xylene	15.12	1.0	20	0	75.6	78 - 122	15.28	1.04	20	S
sec-Butylbenzene	14.86	1.0	20	0	74.3	77 - 126	16.29	9.13	20	S
Styrene	14.98	1.0	20	0	74.9	78 - 123	15.63	4.31	20	S
tert-Butylbenzene	14.7	1.0	20	0	73.5	78 - 124	16.52	11.7	20	S
Tetrachloroethene	15.05	1.0	20	0	75.2	74 - 129	15.92	5.63	20	
Toluene	15.24	1.0	20	0	76.2	80 - 121	16.47	7.72	20	S
trans-1,2-Dichloroethene	14	1.0	20	0.6414	66.8	75 - 124	14.59	4.15	20	S
trans-1,3-Dichloropropene	14.95	1.0	20	0	74.8	73 - 127	15.63	4.47	20	
Trichloroethene	36.22	1.0	20	135.7	-498	79 - 123	39.39	8.4	20	SO
Trichlorofluoromethane	13.88	1.0	20	0	69.4	65 - 141	14.65	5.38	20	
Vinyl chloride	13.36	1.0	20	0	66.8	58 - 137	13.54	1.37	20	
Surr: 1,2-Dichloroethane-d4	*45.9*	*1.0*	*50*	*0*	*91.8*	*81 - 118*	*43.93*	*4.38*	*20*	
Surr: 4-Bromofluorobenzene	*49.76*	*1.0*	*50*	*0*	*99.5*	*85 - 114*	*50.24*	*0.952*	*20*	
Surr: Dibromofluoromethane	*44.58*	*1.0*	*50*	*0*	*89.2*	*80 - 119*	*45.18*	*1.34*	*20*	
Surr: Toluene-d8	*50.81*	*1.0*	*50*	*0*	*102*	*89 - 112*	*52*	*2.32*	*20*	

ALS Houston, US Date: 28-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
WorkOrder: HS20120090

QC BATCH REPORT

Batch ID: R374536 (0)	Instrument: VOA6	Method: VOLATILES ORGANICS BY METHOD 8260C

The following samples were analyzed in this batch:

HS20120090-01	HS20120090-02	HS20120090-03	HS20120090-04
HS20120090-05			

ALS Houston, US Date: 28-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
WorkOrder: HS20120090

QC BATCH REPORT

Batch ID: R374634 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MBLK Sample ID: **VBLKW-201214** Units: **ug/L** Analysis Date: **14-Dec-2020 12:58**
Client ID: Run ID: **VOA6_374634** SeqNo: **5880913** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	0.50	1.0								U
1,1,1-Trichloroethane	0.50	1.0								U
1,1,2,2-Tetrachloroethane	0.50	1.0								U
1,1,2-Trichloroethane	0.50	1.0								U
1,1-Dichloroethane	0.50	1.0								U
1,1-Dichloroethene	0.50	1.0								U
1,1-Dichloropropene	0.50	1.0								U
1,2,3-Trichlorobenzene	1.0	1.0								U
1,2,3-Trichloropropane	1.0	1.0								U
1,2,4-Trichlorobenzene	1.0	1.0								U
1,2,4-Trimethylbenzene	1.0	1.0								U
1,2-Dibromo-3-chloropropane	0.50	1.0								U
1,2-Dibromoethane	0.50	1.0								U
1,2-Dichlorobenzene	1.0	1.0								U
1,2-Dichloroethane	0.50	1.0								U
1,2-Dichloropropane	0.50	1.0								U
1,3,5-Trimethylbenzene	0.50	1.0								U
1,3-Dichlorobenzene	1.0	1.0								U
1,3-Dichloropropane	1.0	1.0								U
1,4-Dichlorobenzene	1.0	1.0								U
2,2-Dichloropropane	0.50	1.0								U
2-Butanone	1.0	2.0								U
2-Chlorotoluene	1.0	1.0								U
2-Hexanone	2.0	2.0								U
4-Chlorotoluene	1.0	1.0								U
4-Isopropyltoluene	1.0	1.0								U
4-Methyl-2-pentanone	2.0	2.0								U
Acetone	1.0	2.0								U
Benzene	0.50	1.0								U
Bromobenzene	1.0	1.0								U
Bromochloromethane	0.50	1.0								U
Bromodichloromethane	0.50	1.0								U
Bromoform	0.50	1.0								U
Bromomethane	0.50	1.0								U

ALS Houston, US Date: 28-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
WorkOrder: HS20120090

QC BATCH REPORT

Batch ID: R374634 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MBLK Sample ID: **VBLKW-201214** Units: **ug/L** Analysis Date: **14-Dec-2020 12:58**
Client ID: Run ID: **VOA6_374634** SeqNo: **5880913** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	1.0	2.0								U
Carbon tetrachloride	0.50	1.0								U
Chlorobenzene	0.50	1.0								U
Chloroethane	0.50	1.0								U
Chloroform	0.50	1.0								U
Chloromethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
cis-1,3-Dichloropropene	0.50	1.0								U
Dibromochloromethane	0.50	1.0								U
Dibromomethane	0.50	1.0								U
Dichlorodifluoromethane	0.50	1.0								U
Ethylbenzene	1.0	1.0								U
Hexachlorobutadiene	1.0	1.0								U
Isopropylbenzene	1.0	1.0								U
m,p-Xylene	1.0	2.0								U
Methylene chloride	1.0	2.0								U
Naphthalene	0.50	1.0								U
n-Butylbenzene	1.0	1.0								U
n-Propylbenzene	1.0	1.0								U
o-Xylene	1.0	1.0								U
sec-Butylbenzene	0.50	1.0								U
Styrene	1.0	1.0								U
tert-Butylbenzene	0.50	1.0								U
Tetrachloroethene	0.50	1.0								U
Toluene	0.50	1.0								U
trans-1,2-Dichloroethene	0.50	1.0								U
trans-1,3-Dichloropropene	0.50	1.0								U
Trichloroethene	0.50	1.0								U
Trichlorofluoromethane	0.50	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*43.1*	*1.0*	*50*	*0*	*86.2*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*47.28*	*1.0*	*50*	*0*	*94.6*	*85 - 114*				
Surr: Dibromofluoromethane	*43.93*	*1.0*	*50*	*0*	*87.9*	*80 - 119*				
Surr: Toluene-d8	*52.45*	*1.0*	*50*	*0*	*105*	*89 - 112*				

ALS Houston, US Date: 28-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
WorkOrder: HS20120090

QC BATCH REPORT

Batch ID: R374634 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

LCS Sample ID: **VLCSW-201214** Units: **ug/L** Analysis Date: **14-Dec-2020 12:16**
Client ID: Run ID: **VOA6_374634** SeqNo: **5880912** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	19.91	1.0	20	0	99.6	78 - 124				
1,1,1-Trichloroethane	19.72	1.0	20	0	98.6	74 - 131				
1,1,2,2-Tetrachloroethane	20.67	1.0	20	0	103	71 - 121				
1,1,2-Trichloroethane	19.38	1.0	20	0	96.9	80 - 119				
1,1-Dichloroethane	19.67	1.0	20	0	98.4	77 - 125				
1,1-Dichloroethene	18.55	1.0	20	0	92.8	71 - 131				
1,1-Dichloropropene	18.72	1.0	20	0	93.6	78 - 125				
1,2,3-Trichlorobenzene	22.85	1.0	20	0	114	69 - 129				
1,2,3-Trichloropropane	20.24	1.0	20	0	101	73 - 122				
1,2,4-Trichlorobenzene	21.78	1.0	20	0	109	69 - 130				
1,2,4-Trimethylbenzene	20.64	1.0	20	0	103	76 - 124				
1,2-Dibromo-3-chloropropane	20.11	1.0	20	0	101	62 - 128				
1,2-Dibromoethane	20.03	1.0	20	0	100	77 - 121				
1,2-Dichlorobenzene	19.85	1.0	20	0	99.2	80 - 119				
1,2-Dichloroethane	19.54	1.0	20	0	97.7	73 - 128				
1,2-Dichloropropane	19.7	1.0	20	0	98.5	78 - 122				
1,3,5-Trimethylbenzene	19.74	1.0	20	0	98.7	75 - 124				
1,3-Dichlorobenzene	19.84	1.0	20	0	99.2	80 - 119				
1,3-Dichloropropane	19.49	1.0	20	0	97.4	80 - 119				
1,4-Dichlorobenzene	20.55	1.0	20	0	103	79 - 118				
2,2-Dichloropropane	19.71	1.0	20	0	98.6	60 - 139				
2-Butanone	40.65	2.0	40	0	102	56 - 143				
2-Chlorotoluene	20.79	1.0	20	0	104	79 - 122				
2-Hexanone	37.24	2.0	40	0	93.1	57 - 139				
4-Chlorotoluene	20.6	1.0	20	0	103	78 - 122				
4-Isopropyltoluene	19.03	1.0	20	0	95.2	77 - 127				
4-Methyl-2-pentanone	36.49	2.0	40	0	91.2	67 - 130				
Acetone	44.96	2.0	40	0	112	39 - 160				
Benzene	19.24	1.0	20	0	96.2	79 - 120				
Bromobenzene	20.92	1.0	20	0	105	80 - 120				
Bromochloromethane	20.04	1.0	20	0	100	78 - 123				
Bromodichloromethane	20.6	1.0	20	0	103	79 - 125				
Bromoform	21.17	1.0	20	0	106	66 - 130				
Bromomethane	21.74	1.0	20	0	109	53 - 141				

ALS Houston, US Date: 28-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
WorkOrder: HS20120090

QC BATCH REPORT

Batch ID: R374634 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

LCS Sample ID: **VLCSW-201214** Units: **ug/L** Analysis Date: **14-Dec-2020 12:16**
Client ID: Run ID: **VOA6_374634** SeqNo: **5880912** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	41.2	2.0	40	0	103	64 - 133				
Carbon tetrachloride	19.62	1.0	20	0	98.1	72 - 136				
Chlorobenzene	19.81	1.0	20	0	99.1	82 - 118				
Chloroethane	19.4	1.0	20	0	97.0	60 - 138				
Chloroform	19.65	1.0	20	0	98.2	79 - 124				
Chloromethane	17.9	1.0	20	0	89.5	50 - 139				
cis-1,2-Dichloroethene	19.68	1.0	20	0	98.4	78 - 123				
cis-1,3-Dichloropropene	20.32	1.0	20	0	102	75 - 124				
Dibromochloromethane	19.84	1.0	20	0	99.2	74 - 126				
Dibromomethane	20.57	1.0	20	0	103	79 - 123				
Dichlorodifluoromethane	18.09	1.0	20	0	90.5	32 - 152				
Ethylbenzene	19.92	1.0	20	0	99.6	79 - 121				
Hexachlorobutadiene	22.51	1.0	20	0	113	66 - 134				
Isopropylbenzene	18.7	1.0	20	0	93.5	72 - 131				
m,p-Xylene	39.21	2.0	40	0	98.0	80 - 121				
Methylene chloride	19.92	2.0	20	0	99.6	74 - 124				
Naphthalene	21.22	1.0	20	0	106	61 - 128				
n-Butylbenzene	20.18	1.0	20	0	101	75 - 128				
n-Propylbenzene	19.71	1.0	20	0	98.5	76 - 126				
o-Xylene	19.49	1.0	20	0	97.4	78 - 122				
sec-Butylbenzene	19.28	1.0	20	0	96.4	77 - 126				
Styrene	20.01	1.0	20	0	100	78 - 123				
tert-Butylbenzene	19.15	1.0	20	0	95.8	78 - 124				
Tetrachloroethene	18.87	1.0	20	0	94.4	74 - 129				
Toluene	19.84	1.0	20	0	99.2	80 - 121				
trans-1,2-Dichloroethene	20.24	1.0	20	0	101	75 - 124				
trans-1,3-Dichloropropene	20.8	1.0	20	0	104	73 - 127				
Trichloroethene	18.87	1.0	20	0	94.3	79 - 123				
Trichlorofluoromethane	18.46	1.0	20	0	92.3	65 - 141				
Vinyl chloride	18.8	1.0	20	0	94.0	58 - 137				
Surr: 1,2-Dichloroethane-d4	*50.11*	*1.0*	*50*	*0*	*100*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*52.12*	*1.0*	*50*	*0*	*104*	*85 - 114*				
Surr: Dibromofluoromethane	*48.41*	*1.0*	*50*	*0*	*96.8*	*80 - 119*				
Surr: Toluene-d8	*49.97*	*1.0*	*50*	*0*	*99.9*	*89 - 112*				

ALS Houston, US Date: 28-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
WorkOrder: HS20120090

QC BATCH REPORT

Batch ID: R374634 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MS Sample ID: **HS20120243-01MS** Units: **ug/L** Analysis Date: **14-Dec-2020 16:50**
Client ID: Run ID: **VOA6_374634** SeqNo: **5880924** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	21.77	1.0	20	0	109	78 - 124				
1,1,1-Trichloroethane	18.27	1.0	20	0	91.3	74 - 131				
1,1,2,2-Tetrachloroethane	21.85	1.0	20	0	109	71 - 121				
1,1,2-Trichloroethane	21.22	1.0	20	0	106	80 - 119				
1,1-Dichloroethane	15.26	1.0	20	0	76.3	77 - 125				S
1,1-Dichloroethene	10.96	1.0	20	0	54.8	71 - 131				S
1,1-Dichloropropene	18.83	1.0	20	0	94.1	78 - 125				
1,2,3-Trichlorobenzene	21.99	1.0	20	0	110	69 - 129				
1,2,3-Trichloropropane	21.48	1.0	20	0	107	73 - 122				
1,2,4-Trichlorobenzene	22.74	1.0	20	0	114	69 - 130				
1,2,4-Trimethylbenzene	21.82	1.0	20	0	109	76 - 124				
1,2-Dibromo-3-chloropropane	20.54	1.0	20	0	103	62 - 128				
1,2-Dibromoethane	20.07	1.0	20	0	100	77 - 121				
1,2-Dichlorobenzene	20.8	1.0	20	0	104	80 - 119				
1,2-Dichloroethane	19.43	1.0	20	0	97.1	73 - 128				
1,2-Dichloropropane	19.75	1.0	20	0	98.8	78 - 122				
1,3,5-Trimethylbenzene	21.48	1.0	20	0	107	75 - 124				
1,3-Dichlorobenzene	20.55	1.0	20	0	103	80 - 119				
1,3-Dichloropropane	20.73	1.0	20	0	104	80 - 119				
1,4-Dichlorobenzene	21.39	1.0	20	0	107	79 - 118				
2,2-Dichloropropane	17.69	1.0	20	0	88.5	60 - 139				
2-Butanone	33.58	2.0	40	0	83.9	56 - 143				
2-Chlorotoluene	22.82	1.0	20	0	114	79 - 122				
2-Hexanone	42.58	2.0	40	0	106	57 - 139				
4-Chlorotoluene	21.33	1.0	20	0	107	78 - 122				
4-Isopropyltoluene	22.45	1.0	20	0	112	77 - 127				
4-Methyl-2-pentanone	39.17	2.0	40	0	97.9	67 - 130				
Acetone	28.34	2.0	40	0	70.9	39 - 160				
Benzene	18.26	1.0	20	0	91.3	79 - 120				
Bromobenzene	21.43	1.0	20	0	107	80 - 120				
Bromochloromethane	17.29	1.0	20	0	86.5	78 - 123				
Bromodichloromethane	21.03	1.0	20	0	105	79 - 125				
Bromoform	21.43	1.0	20	0	107	66 - 130				
Bromomethane	5.984	1.0	20	0	29.9	53 - 141				S

ALS Houston, US Date: 28-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
WorkOrder: HS20120090

QC BATCH REPORT

Batch ID: R374634 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MS Sample ID: **HS20120243-01MS** Units: **ug/L** Analysis Date: **14-Dec-2020 16:50**
Client ID: Run ID: **VOA6_374634** SeqNo: **5880924** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	17.67	2.0	40	0	44.2	64 - 133				S
Carbon tetrachloride	21.04	1.0	20	0	105	72 - 136				
Chlorobenzene	20.65	1.0	20	0	103	82 - 118				
Chloroethane	59.47	1.0	20	0	297	60 - 138				S
Chloroform	17.73	1.0	20	0	88.6	79 - 124				
Chloromethane	46.13	1.0	20	0	231	50 - 139				S
cis-1,2-Dichloroethene	25.05	1.0	20	7.65	87.0	78 - 123				
cis-1,3-Dichloropropene	20.09	1.0	20	0	100	75 - 124				
Dibromochloromethane	20.87	1.0	20	0	104	74 - 126				
Dibromomethane	19.85	1.0	20	0	99.3	79 - 123				
Dichlorodifluoromethane	2.94	1.0	20	0	14.7	32 - 152				S
Ethylbenzene	22.42	1.0	20	0	112	79 - 121				
Hexachlorobutadiene	23.03	1.0	20	0	115	66 - 134				
Isopropylbenzene	22.15	1.0	20	0	111	72 - 131				
m,p-Xylene	42.31	2.0	40	0	106	80 - 121				
Methylene chloride	13.99	2.0	20	0	70.0	74 - 124				S
Naphthalene	19.94	1.0	20	0	99.7	61 - 128				
n-Butylbenzene	23.31	1.0	20	0	117	75 - 128				
n-Propylbenzene	22.86	1.0	20	0	114	76 - 126				
o-Xylene	20.87	1.0	20	0	104	78 - 122				
sec-Butylbenzene	23.17	1.0	20	0	116	77 - 126				
Styrene	20.35	1.0	20	0	102	78 - 123				
tert-Butylbenzene	22.9	1.0	20	0	115	78 - 124				
Tetrachloroethene	21.42	1.0	20	0	107	74 - 129				
Toluene	20.63	1.0	20	0	103	80 - 121				
trans-1,2-Dichloroethene	15.09	1.0	20	0	75.5	75 - 124				
trans-1,3-Dichloropropene	20.48	1.0	20	0	102	73 - 127				
Trichloroethene	20.13	1.0	20	1.205	94.6	79 - 123				
Trichlorofluoromethane	8.367	1.0	20	0	41.8	65 - 141				S
Vinyl chloride	2.093	1.0	20	0.4082	8.42	58 - 137				S
Surr: 1,2-Dichloroethane-d4	*44.72*	*1.0*	*50*	*0*	*89.4*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*50.81*	*1.0*	*50*	*0*	*102*	*85 - 114*				
Surr: Dibromofluoromethane	*44.35*	*1.0*	*50*	*0*	*88.7*	*80 - 119*				
Surr: Toluene-d8	*51.89*	*1.0*	*50*	*0*	*104*	*89 - 112*				

ALS Houston, US Date: 28-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
WorkOrder: HS20120090

QC BATCH REPORT

Batch ID: R374634 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS20120243-01MSD** Units: **ug/L** Analysis Date: **14-Dec-2020 17:11**
Client ID: Run ID: **VOA6_374634** SeqNo: **5880925** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	21.24	1.0	20	0	106	78 - 124	21.77	2.49	20	
1,1,1-Trichloroethane	17.52	1.0	20	0	87.6	74 - 131	18.27	4.19	20	
1,1,2,2-Tetrachloroethane	21.97	1.0	20	0	110	71 - 121	21.85	0.582	20	
1,1,2-Trichloroethane	21	1.0	20	0	105	80 - 119	21.22	1.05	20	
1,1-Dichloroethane	15.36	1.0	20	0	76.8	77 - 125	15.26	0.616	20	S
1,1-Dichloroethene	10.99	1.0	20	0	54.9	71 - 131	10.96	0.261	20	S
1,1-Dichloropropene	18.29	1.0	20	0	91.5	78 - 125	18.83	2.87	20	
1,2,3-Trichlorobenzene	23.73	1.0	20	0	119	69 - 129	21.99	7.58	20	
1,2,3-Trichloropropane	21.58	1.0	20	0	108	73 - 122	21.48	0.464	20	
1,2,4-Trichlorobenzene	23.01	1.0	20	0	115	69 - 130	22.74	1.2	20	
1,2,4-Trimethylbenzene	22.92	1.0	20	0	115	76 - 124	21.82	4.95	20	
1,2-Dibromo-3-chloropropane	21.86	1.0	20	0	109	62 - 128	20.54	6.23	20	
1,2-Dibromoethane	20.63	1.0	20	0	103	77 - 121	20.07	2.74	20	
1,2-Dichlorobenzene	20.97	1.0	20	0	105	80 - 119	20.8	0.816	20	
1,2-Dichloroethane	19.24	1.0	20	0	96.2	73 - 128	19.43	0.953	20	
1,2-Dichloropropane	18.84	1.0	20	0	94.2	78 - 122	19.75	4.72	20	
1,3,5-Trimethylbenzene	22.01	1.0	20	0	110	75 - 124	21.48	2.44	20	
1,3-Dichlorobenzene	21.68	1.0	20	0	108	80 - 119	20.55	5.35	20	
1,3-Dichloropropane	21.14	1.0	20	0	106	80 - 119	20.73	2	20	
1,4-Dichlorobenzene	21.66	1.0	20	0	108	79 - 118	21.39	1.28	20	
2,2-Dichloropropane	16.92	1.0	20	0	84.6	60 - 139	17.69	4.49	20	
2-Butanone	32.61	2.0	40	0	81.5	56 - 143	33.58	2.94	20	
2-Chlorotoluene	23.58	1.0	20	0	118	79 - 122	22.82	3.3	20	
2-Hexanone	39.34	2.0	40	0	98.4	57 - 139	42.58	7.9	20	
4-Chlorotoluene	21.84	1.0	20	0	109	78 - 122	21.33	2.37	20	
4-Isopropyltoluene	22.66	1.0	20	0	113	77 - 127	22.45	0.933	20	
4-Methyl-2-pentanone	39.27	2.0	40	0	98.2	67 - 130	39.17	0.257	20	
Acetone	28.23	2.0	40	0	70.6	39 - 160	28.34	0.42	20	
Benzene	18.21	1.0	20	0	91.0	79 - 120	18.26	0.316	20	
Bromobenzene	20.96	1.0	20	0	105	80 - 120	21.43	2.2	20	
Bromochloromethane	16.45	1.0	20	0	82.3	78 - 123	17.29	4.98	20	
Bromodichloromethane	20.4	1.0	20	0	102	79 - 125	21.03	3.04	20	
Bromoform	21.48	1.0	20	0	107	66 - 130	21.43	0.244	20	
Bromomethane	6.914	1.0	20	0	34.6	53 - 141	5.984	14.4	20	S

ALS Houston, US Date: 28-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
WorkOrder: HS20120090

QC BATCH REPORT

Batch ID: R374634 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS20120243-01MSD** Units: **ug/L** Analysis Date: **14-Dec-2020 17:11**
Client ID: Run ID: **VOA6_374634** SeqNo: **5880925** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Carbon disulfide	17.02	2.0	40	0	42.5	64 - 133	17.67	3.73	20	S
Carbon tetrachloride	20.79	1.0	20	0	104	72 - 136	21.04	1.22	20	
Chlorobenzene	20.13	1.0	20	0	101	82 - 118	20.65	2.57	20	
Chloroethane	15.09	1.0	20	0	75.5	60 - 138	59.47	119	20	R
Chloroform	17.76	1.0	20	0	88.8	79 - 124	17.73	0.204	20	
Chloromethane	3.478	1.0	20	0	17.4	50 - 139	46.13	172	20	SR
cis-1,2-Dichloroethene	24.74	1.0	20	7.65	85.4	78 - 123	25.05	1.24	20	
cis-1,3-Dichloropropene	19.24	1.0	20	0	96.2	75 - 124	20.09	4.32	20	
Dibromochloromethane	21.2	1.0	20	0	106	74 - 126	20.87	1.6	20	
Dibromomethane	19.85	1.0	20	0	99.3	79 - 123	19.85	0.00798	20	
Dichlorodifluoromethane	3.017	1.0	20	0	15.1	32 - 152	2.94	2.57	20	S
Ethylbenzene	21.97	1.0	20	0	110	79 - 121	22.42	2.02	20	
Hexachlorobutadiene	23.94	1.0	20	0	120	66 - 134	23.03	3.84	20	
Isopropylbenzene	22.22	1.0	20	0	111	72 - 131	22.15	0.322	20	
m,p-Xylene	41.98	2.0	40	0	105	80 - 121	42.31	0.799	20	
Methylene chloride	14.68	2.0	20	0	73.4	74 - 124	13.99	4.78	20	S
Naphthalene	22.35	1.0	20	0	112	61 - 128	19.94	11.4	20	
n-Butylbenzene	23.51	1.0	20	0	118	75 - 128	23.31	0.848	20	
n-Propylbenzene	23.35	1.0	20	0	117	76 - 126	22.86	2.11	20	
o-Xylene	20.67	1.0	20	0	103	78 - 122	20.87	0.956	20	
sec-Butylbenzene	23.42	1.0	20	0	117	77 - 126	23.17	1.07	20	
Styrene	19.98	1.0	20	0	99.9	78 - 123	20.35	1.83	20	
tert-Butylbenzene	23.27	1.0	20	0	116	78 - 124	22.9	1.59	20	
Tetrachloroethene	21.52	1.0	20	0	108	74 - 129	21.42	0.438	20	
Toluene	20.65	1.0	20	0	103	80 - 121	20.63	0.113	20	
trans-1,2-Dichloroethene	15.12	1.0	20	0	75.6	75 - 124	15.09	0.18	20	
trans-1,3-Dichloropropene	19.98	1.0	20	0	99.9	73 - 127	20.48	2.47	20	
Trichloroethene	19.38	1.0	20	1.205	90.9	79 - 123	20.13	3.8	20	
Trichlorofluoromethane	8.452	1.0	20	0	42.3	65 - 141	8.367	1.01	20	S
Vinyl chloride	1.971	1.0	20	0.4082	7.82	58 - 137	2.093	5.96	20	S
Surr: 1,2-Dichloroethane-d4	*43.6*	*1.0*	*50*	*0*	*87.2*	*81 - 118*	*44.72*	*2.54*	*20*	
Surr: 4-Bromofluorobenzene	*49.33*	*1.0*	*50*	*0*	*98.7*	*85 - 114*	*50.81*	*2.97*	*20*	
Surr: Dibromofluoromethane	*44.08*	*1.0*	*50*	*0*	*88.2*	*80 - 119*	*44.35*	*0.62*	*20*	
Surr: Toluene-d8	*51.77*	*1.0*	*50*	*0*	*104*	*89 - 112*	*51.89*	*0.219*	*20*	

ALS Houston, US Date: 28-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
WorkOrder: HS20120090

QC BATCH REPORT

Batch ID: R374634 (0)	Instrument: VOA6	Method: VOLATILES ORGANICS BY METHOD 8260C

The following samples were analyzed in this batch:

HS20120090-06	HS20120090-07	HS20120090-08	HS20120090-09
HS20120090-10	HS20120090-11		

ALS Houston, US Date: 28-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
WorkOrder: HS20120090

QC BATCH REPORT

Batch ID: R374246 (0) **Instrument: ICS2100** **Method: ANIONS BY SW9056A**

MBLK Sample ID: **MBLK-** Units: **mg/L** Analysis Date: **08-Dec-2020 13:05**
Client ID: Run ID: **ICS2100_374246** SeqNo: **5870528** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	0.500	0.500								U

LCS Sample ID: **LCS-** Units: **mg/L** Analysis Date: **08-Dec-2020 13:22**
Client ID: Run ID: **ICS2100_374246** SeqNo: **5870529** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	19.74	0.500	20	0	98.7	80 - 120				

MS Sample ID: **HS20120396-55MS** Units: **mg/L** Analysis Date: **08-Dec-2020 21:32**
Client ID: Run ID: **ICS2100_374246** SeqNo: **5870541** PrepDate: DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	869	2.50	50	842.3	53.3	80 - 120				SEO

MSD Sample ID: **HS20120396-55MSD** Units: **mg/L** Analysis Date: **08-Dec-2020 21:50**
Client ID: Run ID: **ICS2100_374246** SeqNo: **5870542** PrepDate: DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	865	2.50	50	842.3	45.4	80 - 120	869	0.455	20	SEO

The following samples were analyzed in this batch: HS20120090-01 HS20120090-02 HS20120090-03 HS20120090-04 HS20120090-05

ALS Houston, US Date: 28-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
WorkOrder: HS20120090

QC BATCH REPORT

Batch ID: R374294 (0) **Instrument: ICS-Integrion** **Method: ANIONS BY SW9056A**

MBLK Sample ID: **MBLK-120220** Units: **mg/L** Analysis Date: **03-Dec-2020 09:49**
Client ID: Run ID: **ICS-Integrion_374294** SeqNo: **5871328** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate (As N)	0.100	0.100								U
Nitrogen, Nitrite (As N)	0.100	0.100								U
Sulfate	0.500	0.500								U

LCS Sample ID: **LCS-120220** Units: **mg/L** Analysis Date: **03-Dec-2020 10:07**
Client ID: Run ID: **ICS-Integrion_374294** SeqNo: **5871329** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate (As N)	3.974	0.100	4	0	99.4	80 - 120				
Nitrogen, Nitrite (As N)	4.105	0.100	4	0	103	80 - 120				
Sulfate	19.69	0.500	20	0	98.5	80 - 120				

LCSD Sample ID: **LCSD-120220** Units: **mg/L** Analysis Date: **03-Dec-2020 10:25**
Client ID: Run ID: **ICS-Integrion_374294** SeqNo: **5871330** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate (As N)	3.883	0.100	4	0	97.1	80 - 120	3.974	2.32	20	
Nitrogen, Nitrite (As N)	4.019	0.100	4	0	100	80 - 120	4.105	2.13	20	
Sulfate	19.17	0.500	20	0	95.8	80 - 120	19.69	2.7	20	

MS Sample ID: **HS20120073-02MS** Units: **mg/L** Analysis Date: **02-Dec-2020 20:13**
Client ID: Run ID: **ICS-Integrion_374294** SeqNo: **5871315** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate (As N)	2.21	0.100	2	0.4083	90.1	80 - 120				
Nitrogen, Nitrite (As N)	2.02	0.100	2	0	101	80 - 120				
Sulfate	184.8	0.500	10	183.5	12.6	80 - 120				SEO

ALS Houston, US Date: 28-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
WorkOrder: HS20120090

QC BATCH REPORT

Batch ID: R374294 (0) **Instrument: ICS-Integrion** **Method: ANIONS BY SW9056A**

MSD Sample ID: **HS20120073-02MSD** Units: **mg/L** Analysis Date: **02-Dec-2020 20:31**
Client ID: Run ID: **ICS-Integrion_374294** SeqNo: **5871316** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate (As N)	2.044	0.100	2	0.4083	81.8	80 - 120	2.21	7.78	20	
Nitrogen, Nitrite (As N)	1.86	0.100	2	0	93.0	80 - 120	2.02	8.24	20	
Sulfate	172.3	0.500	10	183.5	-112	80 - 120	184.8	6.99	20	SEO

The following samples were analyzed in this batch: HS20120090-01 HS20120090-02 HS20120090-03 HS20120090-04 HS20120090-05

ALS Houston, US Date: 28-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
WorkOrder: **HS20120090**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL/SDL

Acronym	Description
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitaion Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

Unit Reported	Description
mg/L	Milligrams per Liter

ALS Houston, US Date: 28-Dec-20

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	20-030-0	26-Mar-2021
California	2919, 2020-2021	30-Apr-2021
Dept of Defense	PJLA L20-507	22-Dec-2021
Florida	E87611-30-07/01/2020	30-Jun-2021
Illinois	2000322020-4	09-May-2021
Kansas	E-10352 2020-2021	31-Jul-2021
Kentucky	123043, 2020-2021	30-Apr-2021
Louisiana	03087, 2020-2021	30-Jun-2021
North Carolina	624-2020	31-Dec-2020
North Dakota	R-193 2020-2021	30-Apr-2021
Oklahoma	2020-165	31-Aug-2021
Texas	T104704231-20-26	30-Apr-2021

ALS Houston, US Date: 28-Dec-20

Sample Receipt Checklist

Work Order ID: HS20120090 **Date/Time Received:** **02-Dec-2020 10:40**

Client Name: Bhate Environmental **Received by:** **Jared R. Makan**

Completed By: */S/ Paresh M. Giga* 02-Dec-2020 15:35 **Reviewed by:** */S/ RJ Modashia* 02-Dec-2020 21:04

eSignature Date/Time eSignature Date/Time

Matrices: **GW/Water** Carrier name: **FedEx**

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	1 Page(s)
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	COC IDs:None
Samplers name present on COC?	Yes ☐	No ☑	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☐	No ☑	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	

Temperature(s)/Thermometer(s):	1.2C U/c	IR25
Cooler(s)/Kit(s):	43893	
Date/Time sample(s) sent to storage:	12/2/2020 15:55	

Water - VOA vials have zero headspace?	Yes ☐	No ☑	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☐	No ☑	N/A ☐
pH adjusted?	Yes ☑	No ☐	N/A ☐
pH adjusted by:	Si Ma		

Login Notes:
03WW01 & 35AWW08 Metals pH >2 (7)
Pres'd with 0.5ml HNO3 12/2/20 @ 13:30 Final pH (1)
35AWW11 - CO2 - 1 Neat vial received broken.
03WW01 VOC vial 3 & RSK vials 2 & 3 have headspace > 6mm.
35AWW08 RSK viAL 3 has headspace > 6mm

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

01071959

bhate ENVIRONMENTAL ASSOCIATES INC.

1608 13th Avenue South, Suite 300
Birmingham Alabama 35205
Tel: 205-918-4000
Fax: 205-918-4050

Chain of Custody and Analytical Request

Page: ____ of ____

Project/Phase No: NWO1312.0150

COC Number(1): ____

LIMS Number: ____

Facility/Base I.D.: LHAAP

Project/Site Name: LHAAP / Site 58

Client Name:

Collected by: Scott Beesinger

Field Sample ID (30 Characters Max)	Date Collected (dd-mmm-yyyy)	Time Collected (Military) (hhmm)	Sample Depth (beginning - ending)	SA Code (2)	Sample Number (3)	Sample Matrix (4)	Number of containers	VOC	MEE	TOC	Carbon Dioxide	Anions	ARSENIC	Ambient Blank Lot Control Number	Equipment Blank Lot Control Number	Trip Blank Lot Control Number	Cooler ID
03AWW08_120120	01 DEC 2020	0720	-	N		WG	12	X	X	X	X	X	X				
35AWW08_120120	01 DEC 2020	0820	-	N		WG	12	X	X	X	X	X	X				
35AWW11_120120	01 DEC 2020	0915	-	N		WG	11	X	X	X	X	X					
35AWW11_120120_a	01 DEC 2020	0915		FD		WG	11	X	X	X	X	X					
35AWW06_120120	01 DEC 2020	1020		N		WG	11	X	X	X	X	X					
35AWW17_120120	01 DEC 2020	1110	-	N		WG	3	X									
35AWW18_120120	01 DEC 2020	1155	-	N		WG	3	X									
35AWW18_120120_a	01 DEC 2020	1155	-	FD		WG	3	X									
35AWW16_120120	01 DEC 2020	1240	-	N		WG	3	X									
35AWW15_120120	01 DEC 2020	1320	-	N		WG	3	X									
TRIP BLANK	01 DEC 2020		-	TB		W	2	X									

HS20120090

Bhate Environmental Associates, Inc.
LHAAP-58

COMMENTS: ____

Custody Transfers Prior to Receipt by Laboratory

Relinquished by (signed)	Date	Time	Received by (signed)	Date	Time
1. Scott Beesinger	12/1/20	1430	1. J. Mummy	12/2/20	10:40
2.			2.		
3.			3.		

Cooler 43593 Temp 1.2°C 1125 CF

Sample Delivery Details / Laboratory Receipt

Delivered Directly to Lab: ____ Shipped ____ No.:

Method of Shipment: ____

Fed Ex ____ Airbill Number: ____

Analytical Lab: ALS 10450 Stanciff Rd. Suite 210 Houston, TX 77099 (281) 530-5656

ATTN: SONIA WEST Lab Recipient: Delivery Date/Time:

1.) Chain of Custody Number = date collected + custody number (e.g. 09-02-1999-01)

2.) Sample Type (SA) Codes: N = Normal Sample, TB = Trip Blank (-c) Sample, FD = Field Duplicate (-a) Samples, FR = Field Replicate (-b) Samples, EB = Equipment Blank (-d) Samples, MS = Matrix Spike, SD = Matrix Spike Duplicate, AB = Ambient Blank (-e)

3.) Sample Number: Unique sample number collected from a particular location per day. (e.g. Groundwater sample collected from MW-1 on 10/10/99 = 01, if sampled again on 10/10/99 = 02, etc.)

4.) Matrix Codes: GS = Soil Gas, WG = Groundwater, WS = Surface Water, SO = Soil, SE = Sediment, SL = Sludge, SS = Surface Soil Samples, WQ = Aqueous Blank Samples (trip, equipment, ambient, etc), SQ = Soil Blanks

5.) Sample Analysis Requested: Analytical method requested and number of containers provided for each.

6.) Quality assurance samples are assigned by date (ddmmyy) and the sample number associated with the sample (01, 02, etc) (e.g. Equipment blank collected in association with MW-1 on 10/10/99 will be designated 10109901 in the Equipment Blank Lot Control

01071960

ALS
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5856
Fax. +1 281 530 5887

43893

CUSTODY SEAL

Date: 12/2/20 Time: 1430
Name: [illegible]
Company: BHATE

Seal Broken By:
Date: 12/02/20

43893 DEC 0 2 2020

Must Deliver Next Business
Time and Tempature

1303 17
1 13:30 A
43893

ORIGIN ID:SGRA (303) 587-2450
SCOTT BEESINGER
BHATE ENVIRONMENTAL ASSOCIATES
1203-B EAST GRAND AVE.
PMB202
MARSHALL, TX 75670
UNITED STATES US

SHIP DATE: 25NOV20
ACTWGT: 1.00 LB MAN
CAD: 3001307CAFE3211
DIMS: 26x14x14 IN

TO CLIENT SERVICES
ALS LABORATORY GROUP
10450 STANCLIFF ROAD
SUITE 210
HOUSTON TX 77099
(281) 530-5856
REF: LHAAP-8075073-RJ

RMA:

FedEx Express

Fed Ex
TRK# 0221 1891 8883 1308

WED - 02 DEC AA
PRIORITY OVERNIGHT

AB SGRA

77099
TX-US
IAH

[illegible]

ALS Environmental
ALS Group USA, Corp
1317 South 13th Avenue
Kelso, WA 98626
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F : +1 360 636 1068
www.alsglobal.com

December 17, 2020

Analytical Report for Service Request No: K2011317

RJ Modashia
ALS Laboratory Group
10450 Stancliff Road
Suite 210
Houston, TX 77099-4338

RE: HS20120090

Dear RJ,

Enclosed are the results of the sample(s) submitted to our laboratory December 04, 2020
For your reference, these analyses have been assigned our service request number **K2011317.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please contact me if you have any questions. My extension is 3350. You may also contact me via email at Kelley.Lovejoy@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Kelley Lovejoy
Project Manager

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Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LOD	Limit of Detection
LOQ	Limit of Quantitation
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.
H	The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
J	The result is an estimated value.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimated value.
J	The result is an estimated value.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso
State Certifications, Accreditations, and Licenses

Agency	Web Site	Number
Alaska DEH	http://dec.alaska.gov/eh/lab/cs/csapproval.htm	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2795
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L16-58-R4
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Hawaii DOH	http://health.hawaii.gov/	-
ISO 17025	http://www.pjlabs.com/	L16-57
Louisiana DEQ	http://www.deq.louisiana.gov/page/la-lab-accreditation	03016
Maine DHS	http://www.maine.gov/dhhs/	WA01276
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Nevada DEP	http://ndep.nv.gov/bsdw/labservice.htm	WA01276
New Jersey DEP	http://www.nj.gov/dep/enforcement/oqa.html	WA005
New York - DOH	https://www.wadsworth.org/regulatory/elap	12060
North Carolina DEQ	https://deq.nc.gov/about/divisions/water-resources/water-resources-data/water-sciences-home-page/laboratory-certification-branch/non-field-lab-certification	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA100010
South Carolina DHEC	http://www.scdhec.gov/environment/EnvironmentalLabCertification/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704427
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C544
Wyoming (EPA Region 8)	https://www.epa.gov/region8-waterops/epa-region-8-certified-drinking-water-	-
Kelso Laboratory Website	www.alsglobal.com	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.ALSGlobal.com or at the accreditation bodies web site.
Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/anlayte is offered by that state.

Case Narrative

ALS Environmental—Kelso Laboratory
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Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

1317 South 13th Ave, Kelso, WA 98626 | 1-360-577-7222 | www.alsglobal.com

Client: ALS Environmental - US
Project: HS20120090
Sample Matrix: Ground Water

Service Request: K2011317
Date Received: 12/04/2020

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples for the Tier level II requested by the client.

Sample Receipt:

Five ground water samples were received for analysis at ALS Environmental on 12/04/2020. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

General Chemistry:

Method SM 5310 C, 12/16/2020: The matrix spike recovery of Total Organic Carbon for sample 35AWW06_120120 was outside control criteria. Recovery in the Laboratory Control Sample (LCS) was acceptable, which indicated the analytical batch was in control. The matrix spike outlier suggested a potential low bias in this matrix. No further corrective action was appropriate.

Approved by Sydney A Wolfe Date 12/17/2020

Chain of Custody

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
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10450 Stancliff Rd, Ste 210
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T: +1 281 530 5656
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K2011317

Subcontract Chain of Custody

SAMPLING STATE: **Texas** **COC ID:** **15254**

SUBCONTRACT TO:

ALS Environmental Kelso
1317 S. 13th Avenue
Kelso, WA 98626

Phone: +1 360 501 3312

CUSTOMER INFORMATION:

Company:	ALS Houston
Contact:	RJ Modashia
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Email:	RJ.Modashia@alsglobal.com
Alternate Contact:	
Email:	

INVOICE INFORMATION:

Company:	ALS Houston
Contact:	Accounts Payable
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Reference:	HS20120090
TSR:	Danielle Winnings

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS20120090-01**	**03WW01_120120**	**Groundwater**	**01 Dec 2020 07:20**
	TOC: Provide DOD Level II and Level IV reports in separate pdf			16 Dec 2020
2.	**HS20120090-02**	**35AWW08_120120**	**Groundwater**	**01 Dec 2020 08:20**
	TOC: Provide DOD Level II and Level IV reports in separate pdf			16 Dec 2020
3.	**HS20120090-03**	**35AWW11_120120**	**Groundwater**	**01 Dec 2020 09:15**
	TOC: Provide DOD Level II and Level IV reports in separate pdf			16 Dec 2020
4.	**HS20120090-04**	**35AWW11_120120_a**	**Groundwater**	**01 Dec 2020 09:15**
	TOC: Provide DOD Level II and Level IV reports in separate pdf			16 Dec 2020
5.	**HS20120090-05**	**35AWW06_120120**	**Groundwater**	**01 Dec 2020 10:20**
	TOC: Provide DOD Level II and Level IV reports in separate pdf			16 Dec 2020

Comments: Please analyze for the analysis listed above.
Send report to the emails shown above.

QC Level: DOD IV (DoD Data Package)

K201137

Subcontract Chain of Custody

SAMPLING STATE: **Texas** **COC ID:** **15254**

Relinquished By: J. Mancini Date/Time: 12/3/20 18:00

Received By: ALS KELSO Date/Time: 12/4/20 10:00

Cooler ID(s): Temperature(s):

PM Kelly

Cooler Receipt and Preservation Form

Client ALS- Houston Service Request K20 11319

Received: 12/4/20 Opened: 12/4/20 By: [illegible] Unloaded: 12/4/20 By: [illegible]

1. Samples were received via? *USPS* (*Fed Ex*) *UPS* *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) (*Cooler*) *Box* *Envelope* *Other* _____ *NA*
3. Were custody seals on coolers? NA (Y) N If yes, how many and where? 2 Front
   If present, were custody seals intact? (Y) N If present, were they signed and dated? (Y) N
4. Was a Temperature Blank present in cooler? NA (Y) N If yes, notate the temperature in the appropriate column below:
   If no, take the temperature of a representative sample bottle contained within the cooler; notate in the column "Sample Temp":
5. Were samples received within the method specified temperature ranges? NA (Y) N
   If no, were they received on ice and same day as collected? If not, notate the cooler # below and notify the PM. (NA) Y N

If applicable, tissue samples were received: *Frozen* *Partially Thawed* *Thawed*

Temp Blank	Sample Temp	IR Gun	Cooler #/COC ID / NA	Out of temp indicate with "X"	PM Notified If out of temp	Tracking Number NA	Filed
1.4		IR02	15254			1891 8883 3506	

6. Packing material: *Inserts* *Baggies* *Bubble Wrap* *Gel Packs* (*Wet Ice*) *Dry Ice* *Sleeves* _____
7. Were custody papers properly filled out (ink, signed, etc.)? NA (Y) N
8. Were samples received in good condition (unbroken) NA (Y) N
9. Were all sample labels complete (ie, analysis, preservation, etc.)? NA (Y) N
10. Did all sample labels and tags agree with custody papers? NA (Y) N
11. Were appropriate bottles/containers and volumes received for the tests indicated? NA (Y) N
12. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* NA (Y) N
13. Were VOA vials received without headspace? *Indicate in the table below.* (NA) Y N
14. Was C12/Res negative? (NA) Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count Bottle Type	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

Notes, Discrepancies, Resolutions: _____

General Chemistry

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	K2011317
Project:	HS20120090	**Date Collected:**	12/1/20
Sample Matrix:	Ground Water	**Date Received:**	12/4/20
Analysis Method:	SM 5310 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Carbon, Total Organic

Sample Name	Lab Code	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
03WW01_120120	K2011317-001	**99.9**	2.5	1.0	0.4	5	12/16/20 14:30	
35AWW08_120120	K2011317-002	**165**	5.0	2.0	0.7	10	12/16/20 14:30	
35AWW11_120120	K2011317-003	**3.63**	0.50	0.20	0.07	1	12/16/20 14:30	
35AWW11_120120_a	K2011317-004	**3.81**	0.50	0.20	0.07	1	12/16/20 14:30	
35AWW06_120120	K2011317-005	**8.67**	0.50	0.20	0.07	1	12/16/20 14:30	
Method Blank	K2011317-MB	ND U	0.50	0.20	0.07	1	12/16/20 14:30	

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QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K2011317
Project	HS20120090	**Date Collected:**	12/01/20
Sample Matrix:	Ground Water	**Date Received:**	12/04/20
		Date Analyzed:	12/16/20

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	35AWW06_120120	**Units:**	mg/L
Lab Code:	K2011317-005	**Basis:**	NA

Analyte Name	Analysis Method	LOQ	LOD	MDL	Sample Result	Duplicate Sample K2011317-005DUP Result	Average	RPD	RPD Limit
Carbon, Total Organic	SM 5310 C	0.50	0.20	0.07	8.67	8.57	8.62	1	10

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

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QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K2011317
Project:	HS20120090	**Date Collected:**	12/01/20
Sample Matrix:	Ground Water	**Date Received:**	12/04/20
		Date Analyzed:	12/16/20
		Date Extracted:	NA

Matrix Spike Summary
Carbon, Total Organic

Sample Name:	35AWW06_120120	**Units:**	mg/L
Lab Code:	K2011317-005	**Basis:**	NA
Analysis Method:	SM 5310 C		
Prep Method:	None		

Matrix Spike
K2011317-005MS

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Carbon, Total Organic	8.67	28.9	25.0	81 *	83-117

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

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QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K2011317
Project:	HS20120090	**Date Analyzed:**	12/16/20
Sample Matrix:	Ground Water	**Date Extracted:**	NA

Lab Control Sample Summary
Carbon, Total Organic

Analysis Method:	SM 5310 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	707179

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K2011317-LCS	24.2	25.0	97	83-117

December 24, 2020 Service Request No:R2011383

RJ Modashia
ALS Laboratory Group
10450 Stancliff Road
Suite 210
Houston, TX 77099-4338

Laboratory Results for: LHAAP / Site 58, HS20120090

Dear RJ,

Enclosed are the results of the sample(s) submitted to our laboratory December 02, 2020
For your reference, these analyses have been assigned our service request number **R2011383.**

All testing was performed according to our laboratory's quality assurance program and met the requirements of the TNI standards except as noted in the case narrative report. Any testing not included in the lab's accreditation is identified on a Non-Certified Analytes report. All results are intended to be considered in their entirety. ALS Environmental is not responsible for use of less than the complete report. Results apply only to the individual samples submitted to the lab for analysis, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s), and represented by Laboratory Control Sample control limits. Any events, such as QC failures or Holding Time exceedances, which may add to the uncertainty are explained in the report narrative or are flagged with qualifiers. The flags are explained in the Report Qualifiers and Definitions page of this report.

Please contact me if you have any questions. My extension is 7471. You may also contact me via email at Brady.Kalkman@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Brady Kalkman
Project Manager

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Narrative Documents

ALS Environmental—Rochester Laboratory
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1565 Jefferson Rd, Building 300, Rochester, NY 14623 | 585-288-5380 | www.alsglobal.com

Client: ALS Environmental - US
Project: LHAAP / Site 58, HS20120090
Sample Matrix: Water

Service Request: R2011383
Date Received: 12/02/2020

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples for the Tier level IV requested by the client.

Sample Receipt:

Five water samples were received for analysis at ALS Environmental on 12/02/2020. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

Semivoa GC:

Method Organic Acids, 12/15/2020: The matrix spike recovery of Pyruvic Acid was outside of control limits for R2011383-005 Matrix Spike/Duplicate Matrix Spike. Other analytes were within acceptable limits. Parent sample did not contain a result for Pyruvic Acid above the reporting limit. All other run QC was within acceptable limits. QC was not required for the sample, no further action was taken.

Approved by _____ Date 12/24/2020

ALS Environmental

SAMPLE DETECTION SUMMARY

CLIENT ID: 03WW01_120120			Lab ID: R2011383-001			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Pyruvic Acid	0.068	J	0.016	0.20	mg/L	Organic Acids
Acetic Acid	1.3	J	0.56	4.0	mg/L	Organic Acids
Butanoic Acid (Butyric Acid)	9.6		0.32	2.0	mg/L	Organic Acids
Lactic Acid	2.8		0.14	2.0	mg/L	Organic Acids

CLIENT ID: 35AWW08_120120			Lab ID: R2011383-002			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Pyruvic Acid	0.096	J	0.016	0.20	mg/L	Organic Acids
Acetic Acid	1.1	J	0.56	4.0	mg/L	Organic Acids
Butanoic Acid (Butyric Acid)	17		0.32	2.0	mg/L	Organic Acids
Lactic Acid	1.9	J	0.14	2.0	mg/L	Organic Acids

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Sample Receipt Information

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

Client: ALS Environmental - US **Service Request:**R2011383
Project: LHAAP / Site 58, HS20120090/NW01312.0150

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
R2011383-001	03WW01_120120	12/1/2020	0720
R2011383-002	35AWW08_120120	12/1/2020	0820
R2011383-003	35AWW11_120120	12/1/2020	0915
R2011383-004	35AWW11_120120_a	12/1/2020	0915
R2011383-005	35AWW06_120120	12/1/2020	1020

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bhate ENVIRONMENTAL CONSTRUCTION ENERGY

1608 13th Avenue South, Suite 300
Birmingham Alabama 35205
Tel: 205-918-4000
Fax: 205-918-4050

Page: ____ of ____

Project/Phase No: NWO1312.0150

COC Number(1): ____

LIMS Number: ____

Chain of Custody and Analytical Request

Facility/Base I.D.: LHAAP

Project/Site Name: LHAAP / Site 58

Client Name:

Collected by: Scott Beesinger

Field Sample ID (30 Characters Max)	Date Collected (dd-mmm-yyyy)	Time Collected (Military) (hhmm)	Sample Depth (beginning - ending)	SA Code (2)	Sample Number (3)	Sample Matrix (4)	Number of containers	Volatile Fatty Acids										Ambient Blank Lot Control Number	Equipment Blank Lot Control Number	Trip Blank Lot Control Number	Cooler ID
							Sample Analysis Requested (5)											Quality Assurance Samples (6)			
03WW01_120120	01DEC2020	0720	-	N		WG	1	X													
35AWW08_120120	01DEC2020	0820	-	N		WG	1	X													
35AWW11_120120	01DEC2020	0915	-	N		WG	1	X													
35AWW11_120120_a	01DEC2020	0915		FD		WG	1	X													
35AWW06_120120	01DEC2020	1020		N		WG	1	X													
			-																		
			-																		
			-																		
			-																		
			-																		
			-																		

COMMENTS: ____

Custody Transfers Prior to Receipt by Laboratory

Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1. [signature]	12/1/20	1430	1. [signature]	12/2/2020	1100
2.			2.		
3.			3.		

Sample Delivery Details / Laboratory Receipt

Delivered Directly to Lab: ____ Shipped ____ No.:

Method of Shipment: ____

Fed Ex ____ Airbill Number: ____

Analytical Lab: ALS 10450 Stancliff Rd. Suite 210 Houston, TX 77099 (281) 530-5656

ATTN: SONIA WEST Lab Recipient: Delivery Date/Time:

1.) Chain of Custody Number = date collected + custody number (e.g. 09-02-1999-01)

2.) Sample Type (SA) Codes: N = Normal Sample, TB = Trip Blank (-c) Sample, FD = Field Duplicate (-a) Samples, FR = Field Replicate (-b) Samples, EB = Equipment Blank (-d) Samples, MS = Matrix Spike, SD = Matrix Spike Duplicate, AB = Ambient Blank (-e)

3.) Sample Number: Unique sample number collected from a particular location per day. (e.g. Groundwater sample collected from MW-1 on 10/10/99 = 01, if sampled again on 10/10/99 = 02, etc.)

4.) Matrix Codes: GS = Soil Gas, WG = Groundwater, WS = Surface Water, SO = Soil, SE = Sediment, SL = Sludge, SS = Surface Soil Samples, WQ = Aqueous Blank Samples (trip, equipment, ambient, etc), SQ = Soil Blanks

5.) Sample Analysis Requested: Analytical method requested and number of containers provided for each.

6.) Quality assurance samples are assigned by date (ddmmyy) and the sample number associated with the sample (01, 02, etc) (e.g. Equipment blank collected in association with MW-1 on 10/10/99 will be designated 10109901 in the Eq

R2011383 5
ALS Laboratory Group
LHAAP / Site 58

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Cooler Receipt and Preservation Check Form

R2011383 5
ALS Laboratory Group
LHAAP / Site 69

Project/Client Bhate Folder Number .

Cooler received on 12/2/2020 by: @

COURIER: ALS UPS (FEDEX) VELOCITY CLIENT

1	Were **Custody seals** on outside of cooler?	Y (N)	5a	**Perchlorate** samples have required headspace?	Y N (NA)
2	**Custody papers** properly completed (ink, signed)?	(Y) N	5b	Did VOA vials, Alk,or Sulfide have sig* **bubbles**?	Y N (NA)
3	Did all bottles arrive in good **condition** (unbroken)?	(Y) N	6	Where did the bottles originate?	(ALS/ROC) CLIENT
4	Circle: (Wet Ice) **Dry Ice Gel packs** present?	(Y) N	7	Soil VOA received as: Bulk Encore 5035set	(NA)

8. Temperature Readings Date: 12/2/2020 Time: 1111 ID: IR#7 (IR#10) From: (Temp Blank) Sample Bottle

Observed Temp (°C)	2.1						
Within 0-6°C?	(Y) N	Y N	Y N	Y N	Y N	Y N	Y N
If <0°C, were samples frozen?	Y N	Y N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: Ice melted Poorly Packed (described below) Same Day Rule

&Client Approval to Run Samples: Standing Approval Client aware at drop-off Client notified by:

All samples held in storage location: R-002 by @ on 12/2/20 at 1115
5035 samples placed in storage location: by on at within 48 hours of sampling? Y N

Cooler Breakdown/Preservation Check**: Date : 12/2/2020 Time: 1418 by: @

9. Were all bottle labels complete (*i.e.* analysis, preservation, etc.)? (YES) NO
10. Did all bottle labels and tags agree with custody papers? (YES) NO
11. Were correct containers used for the tests indicated? (YES) NO
12. Were 5035 vials acceptable (no extra labels, not leaking)? YES NO (N/A)
13. Air Samples: Cassettes / Tubes Intact Y / N with MS Y / N Canisters Pressurized Tedlar® Bags Inflated (N/A)

pH	Lot of test paper	Reagent	Preserved? Yes	Preserved? No	Lot Received	Exp	Sample ID Adjusted	Vol. Added	Lot Added	Final pH
≥12		NaOH								
≤2		HNO_3								
≤2		H_2SO_4								
<4		$NaHSO_4$								
5-9		For 608pest			No=Notify for 3day					
Residual Chlorine (-)		For CN, Phenol, 625, 608pest, 522			If +, contact PM to add $Na_2S_2O_3$ (625, 608, CN), ascorbic (phenol).					
		$Na_2S_2O_3$								
		ZnAcetate	-	-			**VOAs and 1664 Not to be tested before analysis. Otherwise, all bottles of all samples with chemical preservatives are checked (not just representatives).			
		HCl	**	**						

Bottle lot numbers: 081020 - IBMC
Explain all Discrepancies/ Other Comments:

H3PO4 - 208423 Exp. 07/21

HPROD	BULK
HTR	FLDT
SUB	HGFB
ALS	LL3541

Labels secondary reviewed by: @
PC Secondary Review:

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

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Miscellaneous Forms

ALS Environmental—Rochester Laboratory
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ALS Environmental

REPORT QUALIFIERS AND DEFINITIONS

U	Analyte was analyzed for but not detected. The sample quantitation limit has been corrected for dilution and for percent moisture, unless otherwise noted in the case narrative.
J	Estimated value due to either being a Tentatively Identified Compound (TIC) or that the concentration is between the MRL and the MDL. Concentrations are not verified within the linear range of the calibration. For DoD: concentration >40% difference between two GC columns (pesticides/Arclors).
B	Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.
E	Inorganics- Concentration is estimated due to the serial dilution was outside control limits.
E	Organics- Concentration has exceeded the calibration range for that specific analysis.
D	Concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range or that a surrogate has been diluted out of the sample and cannot be assessed.
*	Indicates that a quality control parameter has exceeded laboratory limits. Under the ñNotesò column of the Form I, this qualifier denotes analysis was performed out of Holding Time.
H	Analysis was performed out of hold time for tests that have an ñimmediateò hold time criteria.
#	Spike was diluted out.
+	Correlation coefficient for MSA is <0.995.
N	Inorganics- Matrix spike recovery was outside laboratory limits.
N	Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.
S	Concentration has been determined using Method of Standard Additions (MSA).
W	Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.
P	Concentration >40% difference between the two GC columns.
C	Confirmed by GC/MS
Q	DoD reports: indicates a pesticide/Aroclor is not confirmed (Ó100% Difference between two GC columns).
X	See Case Narrative for discussion.
MRL LOQ	Method Reporting Limit. Also known as: Limit of Quantitation (LOQ) The lowest concentration at which the method analyte may be reliably quantified under the method conditions.
MDL	Method Detection Limit. A statistical value derived from a study designed to provide the lowest concentration that will be detected 99% of the time. Values between the MDL and MRL are estimated (see J qualifier).
LOD	Limit of Detection. A value at or above the MDL which has been verified to be detectable.
ND	Non-Detect. Analyte was not detected at the concentration listed. Same as U qualifier.

ACCREDITED IN ACCORDANCE WITH nelac

Rochester Lab ID # for State Certifications[1]

Connecticut ID # PH0556	Maine ID #NY0032	Pennsylvania ID# 68-786
Delaware Approved	New Hampshire ID # 2941	Rhode Island ID # 158
DoD ELAP #65817	New York ID # 10145	Virginia #460167
Florida ID # E87674	North Carolina #676	

[1] Analyses were performed according to our laboratoryôs NELAP-approved quality assurance program and any applicable state or agency requirements. The test results meet requirements of the current NELAP/TNI standards or state or agency requirements, where applicable, except as noted in the case narrative. Since not all analyte/method/matrix combinations are offered for state/NELAC accreditation, this report may contain results which are not accredited. For a specific list of accredited analytes, contact the laboratory or go to https://www.alsglobal.com/locations/americas/north-america/usa/new-york/rochester-environmental

ALS Laboratory Group

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

ALS Group USA, Corp.
dba ALS Environmental

Analyst Summary report

Client: ALS Environmental - US
Service Request: R2011383
Project: LHAAP / Site 58, HS20120090/NW01312.0150

Sample Name: 03WW01_120120
Lab Code: R2011383-001
Sample Matrix: Water
Date Collected: 12/1/20
Date Received: 12/2/20

Analysis Method	Extracted/Digested By	Analyzed By
Organic Acids		AFELSER

Sample Name: 35AWW08_120120
Lab Code: R2011383-002
Sample Matrix: Water
Date Collected: 12/1/20
Date Received: 12/2/20

Analysis Method	Extracted/Digested By	Analyzed By
Organic Acids		AFELSER

Sample Name: 35AWW11_120120
Lab Code: R2011383-003
Sample Matrix: Water
Date Collected: 12/1/20
Date Received: 12/2/20

Analysis Method	Extracted/Digested By	Analyzed By
Organic Acids		AFELSER

Sample Name: 35AWW11_120120_a
Lab Code: R2011383-004
Sample Matrix: Water
Date Collected: 12/1/20
Date Received: 12/2/20

Analysis Method	Extracted/Digested By	Analyzed By
Organic Acids		AFELSER

Sample Name: 35AWW06_120120
Lab Code: R2011383-005
Sample Matrix: Water
Date Collected: 12/1/20
Date Received: 12/2/20

Analysis Method	Extracted/Digested By	Analyzed By
Organic Acids		AFELSER

INORGANIC PREPARATION METHODS

The preparation methods associated with this report are found in these tables unless discussed in the case narrative.

Water/Liquid Matrix

Analytical Method	Preparation Method
200.7	200.2
200.8	200.2
6010C	3005A/3010A
6020A	ILM05.3
9034 Sulfide Acid Soluble	9030B
SM 4500-CN-E Residual Cyanide	SM 4500-CN-G
SM 4500-CN-E WAD Cyanide	SM 4500-CN-I

Solid/Soil/Non-Aqueous Matrix

Analytical Method	Preparation Method
6010C	3050B
6020A	3050B
6010C TCLP (1311) extract	3005A/3010A
6010 SPLP (1312) extract	3005A/3010A
7199	3060A
300.0 Anions/ 350.1/ 353.2/ SM 2320B/ SM 5210B/ 9056A Anions	DI extraction
For analytical methods not listed, the preparation method is the same as the analytical method reference.	

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Sample Results

ALS Environmental—Rochester Laboratory
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Semivolatile Organic Compounds by GC

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www.alsglobal.com

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R2011383
Project:	LHAAP / Site 58, HS20120090/NW01312.0150	**Date Collected:**	12/01/20 07:20
Sample Matrix:	Water	**Date Received:**	12/02/20 11:00
Sample Name:	03WW01_120120	**Units:**	mg/L
Lab Code:	R2011383-001	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result		LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Pyruvic Acid	**0.068**	**J**	0.20	0.10	0.016	1	12/16/20 22:19	
Acetic Acid	**1.3**	**J**	4.0	2.0	0.56	1	12/16/20 22:19	
Butanoic Acid (Butyric Acid)	**9.6**		2.0	1.0	0.32	1	12/16/20 22:19	
Lactic Acid	**2.8**		2.0	1.0	0.14	1	12/16/20 22:19	
Propionic Acid	ND	U	2.0	1.0	0.19	1	12/16/20 22:19	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R2011383
Project:	LHAAP / Site 58, HS20120090/NW01312.0150	**Date Collected:**	12/01/20 08:20
Sample Matrix:	Water	**Date Received:**	12/02/20 11:00
Sample Name:	35AWW08_120120	**Units:**	mg/L
Lab Code:	R2011383-002	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result		LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Pyruvic Acid	**0.096**	**J**	0.20	0.10	0.016	1	12/17/20 00:22	
Acetic Acid	**1.1**	**J**	4.0	2.0	0.56	1	12/17/20 00:22	
Butanoic Acid (Butyric Acid)	**17**		2.0	1.0	0.32	1	12/17/20 00:22	
Lactic Acid	**1.9**	**J**	2.0	1.0	0.14	1	12/17/20 00:22	
Propionic Acid	ND	U	2.0	1.0	0.19	1	12/17/20 00:22	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R2011383
Project:	LHAAP / Site 58, HS20120090/NW01312.0150	**Date Collected:**	12/01/20 09:15
Sample Matrix:	Water	**Date Received:**	12/02/20 11:00
Sample Name:	35AWW11_120120	**Units:**	mg/L
Lab Code:	R2011383-003	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result		LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND	U	0.20	0.10	0.016	1	12/17/20 01:23	
Acetic Acid	ND	U	4.0	2.0	0.56	1	12/17/20 01:23	
Butanoic Acid (Butyric Acid)	ND	U	2.0	1.0	0.32	1	12/17/20 01:23	
Lactic Acid	ND	U	2.0	1.0	0.14	1	12/17/20 01:23	
Propionic Acid	ND	U	2.0	1.0	0.19	1	12/17/20 01:23	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R2011383
Project:	LHAAP / Site 58, HS20120090/NW01312.0150	**Date Collected:**	12/01/20 09:15
Sample Matrix:	Water	**Date Received:**	12/02/20 11:00
Sample Name:	35AWW11_120120_a	**Units:**	mg/L
Lab Code:	R2011383-004	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result		LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND	U	0.20	0.10	0.016	1	12/15/20 11:28	
Acetic Acid	ND	U	4.0	2.0	0.56	1	12/15/20 11:28	
Butanoic Acid (Butyric Acid)	ND	U	2.0	1.0	0.32	1	12/15/20 11:28	
Lactic Acid	ND	U	2.0	1.0	0.14	1	12/15/20 11:28	
Propionic Acid	ND	U	2.0	1.0	0.19	1	12/15/20 11:28	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R2011383
Project:	LHAAP / Site 58, HS20120090/NW01312.0150	**Date Collected:**	12/01/20 10:20
Sample Matrix:	Water	**Date Received:**	12/02/20 11:00
Sample Name:	35AWW06_120120	**Units:**	mg/L
Lab Code:	R2011383-005	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result		LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND	U	0.20	0.10	0.016	1	12/15/20 12:30	
Acetic Acid	ND	U	4.0	2.0	0.56	1	12/15/20 12:30	
Butanoic Acid (Butyric Acid)	ND	U	2.0	1.0	0.32	1	12/15/20 12:30	
Lactic Acid	ND	U	2.0	1.0	0.14	1	12/15/20 12:30	
Propionic Acid	ND	U	2.0	1.0	0.19	1	12/15/20 12:30	

01071997

QC Summary Forms

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

Semivolatile Organic Compounds by GC

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Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	R2011383
Project:	LHAAP / Site 58, HS20120090/NW01312.0150	**Date Collected:**	12/01/20
Sample Matrix:	Water	**Date Received:**	12/02/20
		Date Analyzed:	12/17/20

Duplicate Matrix Spike Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Sample Name:	35AWW06_120120	**Units:**	mg/L
Lab Code:	R2011383-005	**Basis:**	NA
Analysis Method:	Organic Acids		

		Matrix Spike RQ2015512-01			Duplicate Matrix Spike RQ2015512-02					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Pyruvic Acid	ND U	1.38	2.00	69 *	1.43	2.00	72 *	73-122	3	30
Acetic Acid	ND U	20.5	20.0	102	21.5	20.0	107	80-130	5	30
Butanoic Acid (Butyric Acid)	ND U	21.5	20.0	108	21.4	20.0	107	86-128	<1	30
Lactic Acid	ND U	20.3	20.0	102	21.5	20.0	107	81-114	5	30
Propionic Acid	ND U	22.4	20.0	112	22.8	20.0	114	63-153	2	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R2011383
Project:	LHAAP / Site 58, HS20120090/NW01312.0150	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	mg/L
Lab Code:	RQ2015512-15	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND U	0.20	0.10	0.016	1	12/16/20 15:08	
Acetic Acid	ND U	4.0	2.0	0.56	1	12/16/20 15:08	
Butanoic Acid (Butyric Acid)	ND U	2.0	1.0	0.32	1	12/16/20 15:08	
Lactic Acid	ND U	2.0	1.0	0.14	1	12/16/20 15:08	
Propionic Acid	ND U	2.0	1.0	0.19	1	12/16/20 15:08	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: LHAAP / Site 58, HS20120090/NW01312.0150
Sample Matrix: Water

Service Request: R2011383
Date Analyzed: 12/16/20

Duplicate Lab Control Sample Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Units:mg/L
Basis:NA

		Lab Control Sample			Duplicate Lab Control Sample					
		RQ2015512-16			RQ2015512-17					
Analyte Name	**Analytical Method**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Pyruvic Acid	Organic Acids	1.59	2.00	80	1.61	2.00	80	73-122	<1	30
Acetic Acid	Organic Acids	21.5	20.0	107	21.8	20.0	109	80-130	2	30
Butanoic Acid (Butyric Acid)	Organic Acids	21.5	20.0	108	21.5	20.0	108	86-128	<1	30
Lactic Acid	Organic Acids	20.4	20.0	102	20.8	20.0	104	81-114	2	30
Propionic Acid	Organic Acids	21.9	20.0	109	22.2	20.0	111	63-153	2	30

2655 Park Center Dr., Suite A
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www.alsglobal.com

LABORATORY REPORT

December 11, 2020

RJ Modashia
ALS Laboratory Group
10450 Stancliff Road Suite 210
Houston, TX 77099-4338

RE: HS20120090

Dear RJ:

Enclosed are the results of the samples submitted to our laboratory on December 3, 2020. For your reference, these analyses have been assigned our service request number P2006780.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

ALS | Environmental

By Hayden Akers at 5:01 pm, Dec 11, 2020

Hayden Akers
Project Manager

2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
www.alsglobal.com

Client: ALS Laboratory Group
Project: HS20120090

Service Request No: P2006780

CASE NARRATIVE

The samples were received intact under chain of custody on December 3, 2020 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Carbon Dioxide Analysis

The samples were analyzed for carbon dioxide using a gas chromatograph equipped with a thermal conductivity detector (TCD). A known amount of liquid was displaced by injecting 8.0 milliliters of helium creating a headspace in the sample vial. Each sample vial was agitated using a sonic disrupter for fifteen minutes and then allowed to equilibrate for at least four hours. A volume of the headspace was withdrawn using a gas-tight syringe and analyzed using a manual injection technique. The amount of dissolved gases (carbon dioxide) in the original sample was calculated using Henry's Law. This method was performed with guidance from RSK 175 as described in laboratory SOP VOA-DISGAS. This analyte is included on the laboratory's NELAP and DoD-ELAP scope of accreditation.

Manual integrations were performed on all samples and the laboratory control sample and its duplicate for carbon dioxide.

Methane, Ethene and Ethane Analysis

The samples were also analyzed for methane, ethene, and ethane using a gas chromatograph equipped with a flame ionization detector (FID). A known amount of liquid was displaced by injecting 8.0 milliliters of helium creating a headspace in the sample vial. Each sample vial was agitated using a sonic disrupter for fifteen minutes and then allowed to equilibrate for at least two hours. A volume of the headspace was withdrawn using a gas-tight syringe and analyzed using a manual injection technique. The amount of dissolved gases (methane, ethene and ethane) in the original sample was calculated using Henry's Law. This method was performed with guidance from RSK 175. This method is included on the laboratory's NELAP and DoD-ELAP scope of accreditation.

All samples were originally prepped on December 7th 2020. Before analysis could be performed the power to the laboratory was turned off for potential fire prevention by SCE. On Tuesday December 8th the samples were re-prepped after the power was turned on. However the sample labeled "35AWW11_120120_a" was all displaced on December 7th and could not be re-prepped on December 8th. For this sample the vial from December 7th was analyzed with its extraction QC which failed. All other samples were prepped and run on December 8th and all QC passes.

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Client: ALS Laboratory Group
Project: HS20120090

Service Request No: P2006780

CASE NARRATIVE

Any analytes flagged with an X are not included on the laboratory's NELAP or DoD-ELAP accreditation.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

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ALS Environmental – Simi Valley

CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

Agency	Web Site	Number
Alaska DEC	http://dec.alaska.gov/eh/lab.aspx	17-019
Arizona DHS	http://www.azdhs.gov/preparedness/state-laboratory/lab-licensure-certification/index.php#laboratory-licensure-home	AZ0694
Florida DOH (NELAP)	http://www.floridahealth.gov/licensing-and-regulation/environmental-laboratories/index.html	E871020
Louisiana DEQ (NELAP)	http://www.deq.louisiana.gov/page/la-lab-accreditation	05071
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/professionals/labCert.shtml	2018027
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	1776326
New Jersey DEP (NELAP)	http://www.nj.gov/dep/enforcement/oqa.html	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://www.oregon.gov/oha/ph/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	4068-007
Pennsylvania DEP	http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx	68-03307 (Registration)
PJLA (DoD ELAP)	http://www.pjlabs.com/search-accredited-labs	65818 (Testing)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/agency/qa/env_lab_accreditation.html	T104704413-19-10
Utah DOH (NELAP)	http://health.utah.gov/lab/lab_cert_env	CA016272019-10
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946

Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website.

Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.

ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: ALS Laboratory Group
Service Request: P2006780
Project ID: HS20120090

Date Received: 12/3/2020
Time Received: 10:15

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	RSK 175 - CO2	RSK 175 - Gases
03WW01_120120	P2006780-001	Water	12/1/2020	07:20	X	X
35AWW08_120120	P2006780-002	Water	12/1/2020	08:20	X	X
35AWW11_120120	P2006780-003	Water	12/1/2020	09:15	X	X
35AWW11_120120_a	P2006780-004	Water	12/1/2020	09:15	X	X
35AWW06_120120	P2006780-005	Water	12/1/2020	10:20	X	X

PJ006780

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Subcontract Chain of Custody

SAMPLING STATE: Texas **COC ID:** 15253

SUBCONTRACT TO:

ALS Environmental
2655 Park Center Drive, Suite A
Simi Valley, CA 93065

Phone: +1 805 526 7161

CUSTOMER INFORMATION:

Company: ALS Houston
Contact: RJ Modashia
Address: 10450 Stancliff Rd, Ste 210
Phone: +1 281 530 5656
Email: RJ.Modashia@alsglobal.com
Alternate Contact:
Email:

INVOICE INFORMATION:

Company: ALS Houston
Contact: Accounts Payable
Address: 10450 Stancliff Rd, Ste 210
Phone: +1 281 530 5656
Reference: HS20120090
TSR: Danielle Winnings

	LAB SAMPLE ID / ANALYSIS REQUESTED	CLIENT SAMPLE ID	MATRIX	COLLECT DATE / DUE DATE
1.	**HS20120090-01**	**03WW01_120120**	**Groundwater**	**01 Dec 2020 07:20**
	MEE plus CO2. Provide Level II and Level IV reports in separate pdf			16 Dec 2020
2.	**HS20120090-02**	**35AWW08_120120**	**Groundwater**	**01 Dec 2020 08:20**
	MEE plus CO2. Provide Level II and Level IV reports in separate pdf			16 Dec 2020
3.	**HS20120090-03**	**35AWW11_120120**	**Groundwater**	**01 Dec 2020 09:15**
	MEE plus CO2. Provide Level II and Level IV reports in separate pdf			16 Dec 2020
4.	**HS20120090-04**	**35AWW11_120120_a**	**Groundwater**	**01 Dec 2020 09:15**
	MEE plus CO2. Provide Level II and Level IV reports in separate pdf			16 Dec 2020
5.	**HS20120090-05**	**35AWW06_120120**	**Groundwater**	**01 Dec 2020 10:20**
	MEE plus CO2. Provide Level II and Level IV reports in separate pdf			16 Dec 2020

Comments: Please analyze for the analysis listed above.
Send report to the emails shown above.

QC Level: DOD IV (DoD Data Package)

NEAT / PRESERVED JARS.

P006780

Subcontract Chain of Custody

SAMPLING STATE: **Texas** **COC ID:** **15253**

Relinquished By: J. [illegible] Date/Time: 12/02/20 18:00

Received By: [signature] Date/Time: 12-3-20 1015

Cooler ID(s): Temperature(s): 1°C wet

ALS Environmental
Sample Acceptance Check Form

Client: ALS Laboratory Group Work order: P2006780

Project: HS20120090

Sample(s) received on: 12/3/20 Date opened: 12/3/20 by: ADAVID

Note: This form is used for all samples received by ALS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

		Yes	No	N/A
1	Were **sample containers** properly marked with client sample ID?	☒	☐	☐
2	Did **sample containers** arrive in good condition?	☒	☐	☐
3	Were **chain-of-custody** papers used and filled out?	☒	☐	☐
4	Did **sample container labels** and/or tags agree with custody papers?	☒	☐	☐
5	Was **sample volume** received adequate for analysis?	☒	☐	☐
6	Are samples within specified holding times?	☒	☐	☐
7	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☒	☐	☐
	Cooler Temperature: 1° C Blank Temperature: ° C	Wet Ic		
8	Were **custody seals** on outside of cooler/Box/Container?	☒	☐	☐
	Location of seal(s)? _____ Sealing Lid?	☒	☐	☐
	Were signature and date included?	☒	☐	☐
	Were seals intact?	☒	☐	☐
9	Do containers have appropriate **preservation**, according to method/SOP or Client specified information?	☒	☐	☐
	Is there a client indication that the submitted samples are **pH** preserved?	☒	☐	☐
	Were **VOA vials** checked for presence/absence of air bubbles?	☒	☐	☐
	Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?	☐	☒	☐
10	**Tubes:** Are the tubes capped and intact?	☐	☐	☒
11	**Badges:** Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P2006780-001.01	40mL VOA NP				A	
P2006780-001.02	40mL VOA NP		6		A	CB 12/9/20
P2006780-001.04	40ml VOA HCL				A	
P2006780-001.05	40ml VOA HCL		1		A	CB 12/8/20
P2006780-001.06	40ml VOA HCL				A	
P2006780-002.01	40mL VOA NP		6		A	CB 12/9/20
P2006780-002.02	40mL VOA NP				A	
P2006780-002.04	40ml VOA HCL		1		A	CB 12/8/20
P2006780-002.05	40ml VOA HCL				A	
P2006780-002.06	40ml VOA HCL				A	
P2006780-003.01	40mL VOA NP				A	
P2006780-003.02	40mL VOA NP		6		A	CB 12/9/20
P2006780-003.04	40ml VOA HCL				A	
P2006780-003.05	40ml VOA HCL		1		A	CB 12/8/20
P2006780-003.06	40ml VOA HCL					

Explain any discrepancies: (include lab sample ID numbers):

Sample -003.06 was not received.

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS Environmental
Sample Acceptance Check Form

Client: ALS Laboratory Group Work order: P2006780

Project: HS20120090

Sample(s) received on: 12/3/20 Date opened: 12/3/20 by: ADAVID

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P2006780-004.01	40mL VOA NP		6		A	CB 12/9/20
P2006780-004.02	40mL VOA NP				A	
P2006780-004.04	40ml VOA HCL		1		A	CB 12/7/20
P2006780-004.05	40ml VOA HCL		1		A	CB 12/7/20
P2006780-004.06	40ml VOA HCL		1		A	CB 12/7/20
P2006780-005.01	40mL VOA NP		6		A	CB 12/9/20
P2006780-005.02	40mL VOA NP				A	
P2006780-005.04	40ml VOA HCL				A	
P2006780-005.05	40ml VOA HCL		1		A	CB 12/8/20
P2006780-005.06	40ml VOA HCL				A	

Explain any discrepancies: (include lab sample ID numbers):

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Project ID: **HS20120090** ALS Project ID: P2006780

Carbon Dioxide

Test Code: RSK 175
Instrument ID: HP5890A/GC10/TCD Date(s) Collected: 12/1/20
Analyst: Connor Barrett/Wade Henton Date Received: 12/3/20
Matrix: Liquid Date Analyzed: 12/9/20
Test Notes:

Client Sample ID	ALS Sample ID	Injection Volume ml(s)	**Result µg/L**	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
03WW01_120120	P2006780-001	0.10	**460,000**	1,000	860	370	
35AWW08_120120	P2006780-002	0.050	**830,000**	2,000	1,700	740	
35AWW11_120120	P2006780-003	0.050	**610,000**	2,000	1,700	740	
35AWW11_120120_a	P2006780-004	0.050	**530,000**	2,000	1,700	740	
35AWW06_120120	P2006780-005	0.10	**270,000**	1,000	860	370	
Method Control Sample	P201209-MB	0.10	860	1,000	860	370	**U**

The Method Control Sample is laboratory water carried through the entire analytical process.
U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **ALS Laboratory Group**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P2006780
Client Project ID: **HS20120090** ALS Sample ID: P201209-DLCS

Test Code: RSK 175 Date Collected: NA
Instrument ID: HP5890A/GC10/TCD Date Received: NA
Analyst: Connor Barrett/Wade Henton Date Analyzed: 12/09/20
Matrix: Liquid Volume(s) Analyzed: NA ml(s)
Test Notes:

CAS #	Compound	Spike Amount LCS / DLCS ug/L	Result$_1$ LCS ug/L	Result$_1$ DLCS ug/L	% Recovery LCS	% Recovery DLCS	DOD Acceptance Limits	RPD	RPD Limit	Data Qualifier
124-38-9	Carbon Dioxide	22,900	19,700	19,300	**86**	**84**	80-122	2	12	

$_1$ = The concentration shown includes a subtraction of the Method Control Sample value, even if the result is less than the MRL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **03WW01_120120**
Client Project ID: **HS20120090**

ALS Project ID: P2006780
ALS Sample ID: P2006780-001

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: WH/CB
Matrix: Water
Test Notes:

Date Collected: 12/1/20
Date Received: 12/3/20
Date Analyzed: 12/8/20
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	**1,700**	1.3	1.0	0.51	
74-85-1	Ethene	**1.1**	1.0	0.55	0.24	
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **35AWW08_120120**
Client Project ID: **HS20120090**

ALS Project ID: P2006780
ALS Sample ID: P2006780-002

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: WH/CB
Matrix: Water
Test Notes:

Date Collected: 12/1/20
Date Received: 12/3/20
Date Analyzed: 12/8/20
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	**320**	1.3	1.0	0.51	
74-85-1	Ethene	**5.6**	1.0	0.55	0.24	
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **35AWW11_120120**
Client Project ID: **HS20120090**

ALS Project ID: P2006780
ALS Sample ID: P2006780-003

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: WH/CB
Matrix: Water
Test Notes:

Date Collected: 12/1/20
Date Received: 12/3/20
Date Analyzed: 12/8/20
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	**1,800**	1.3	1.0	0.51	
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **35AWW11_120120_a**
Client Project ID: **HS20120090**

ALS Project ID: P2006780
ALS Sample ID: P2006780-004

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: WH/CB
Matrix: Water
Test Notes:

Date Collected: 12/1/20
Date Received: 12/3/20
Date Analyzed: 12/8/20
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	**4,400**	1.3	1.0	0.51	
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **35AWW06_120120**
Client Project ID: **HS20120090**

ALS Project ID: P2006780
ALS Sample ID: P2006780-005

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: WH/CB
Matrix: Water
Test Notes:

Date Collected: 12/1/20
Date Received: 12/3/20
Date Analyzed: 12/8/20
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	**3,300**	1.3	1.0	0.51	
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **Method Control Sample** ALS Project ID: P2006780
Client Project ID: **HS20120090** ALS Sample ID: P201208-MB

Test Code: RSK 175 Date Collected: NA
Instrument ID: HP5890A/GC10/FID Date Received: NA
Analyst: WH/CB Date Analyzed: 12/08/20
Matrix: Water Volume(s) Analyzed: 0.10 ml(s)
Test Notes:

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	1.0	1.3	1.0	0.51	**U**
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

The Method Control Sample is laboratory water carried through the entire analytical process.
U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **ALS Laboratory Group**
Client Sample ID: **Duplicate Lab Control Sample**
Client Project ID: **HS20120090**

ALS Project ID: P2006780
ALS Sample ID: P201208-LCS
P201208-DLCS

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: WH/CB
Matrix: Water
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 12/08/20
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Spike Amount LCS / DLCS µg/L	Result$_1$ LCS µg/L	Result$_1$ DLCS µg/L	% Recovery LCS	% Recovery DLCS	DOD Acceptance Limits	RPD	RPD Limit	Data Qualifier
74-82-8	Methane	2.52	2.92	2.75	**116**	**109**	73-125	6	26	
74-85-1	Ethene	4.40	4.97	5.09	**113**	**116**	72-133	3	11	
74-84-0	Ethane	4.72	4.80	4.99	**102**	**106**	74-131	4	10	

$_1$ = The concentration shown includes a subtraction of the Method Control Sample value, even if the result is less than the MRL.

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Client:	RJ Modashia ALS Laboratory Group 10450 Stancliff Rd Suite 210 Houston, TX 77040	**Phone:**	281-575-2279 **Fax:**

Identifier: 005RL **Date Rec:** 12/02/2020 **Report Date:** 12/09/2020

Client Project #: NW01312.0150 **Client Project Name:** LHAAP-58

Purchase Order #:

Test results provided for: CENSUS

Reviewed By:

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Results relate only to the items tested and the sample(s) as received by the laboratory.

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CENSUS

Client: **ALS Laboratory Group**
Project: LHAAP-58

MI Project Number: **005RL**
Date Received: 12/02/2020

Sample Information

Client Sample ID:		**03WW01_120120**	**35AWW08_120120**	**35AWW11_120120**	**35AWW06_120120**
Sample Date:		12/01/2020	12/01/2020	12/01/2020	12/01/2020
Units:		cells/mL	cells/mL	cells/mL	cells/mL
Analyst/Reviewer:		HT/CB	HT/CB	HT/CB	HT/CB
Dechlorinating Bacteria					
Dehalococcoides	*DHC*	**2.66E+04**	**9.20E+05**	**3.68E+02**	**1.06E+03**
tceA Reductase	TCE	**4.06E+03**	**1.17E+05**	**4.50E+00**	**1.14E+02**
BAV1 Vinyl Chloride Reductase	BVC	**1.18E+01**	**1.02E+01**	<1.10E+00	<1.40E+00
Vinyl Chloride Reductase	VCR	**2.33E+03**	**8.09E+04**	**1.18E+02**	**1.23E+02**
Dehalobacter spp.	*DHBt*	**1.61E+03**	**7.74E+04**	**5.27E+04**	**3.70E+03**

Legend:
NA = Not Analyzed NS = Not Sampled J = Estimated gene copies below PQL but above LQL I = Inhibited
< = Result not detected

Quality Assurance/Quality Control Data

Samples Received **12/2/2020**

Component	Date Prepared	Date Analyzed	Arrival Temperature	Positive Control	Extraction Blank	Negative Control
DHC	12/02/2020	12/09/2020	0 °C	103%	non-detect	non-detect
BVC	12/02/2020	12/09/2020	0 °C	105%	non-detect	non-detect
TCE	12/02/2020	12/09/2020	0 °C	101%	non-detect	non-detect
VCR	12/02/2020	12/09/2020	0 °C	103%	non-detect	non-detect
DHBt	12/02/2020	12/09/2020	0 °C	105%	non-detect	non-detect

01072023

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Project Manager: Kim Nemmers
Project Name: LHAAP-58
Project No.: NW01312.0150

Purchase Order No.
Subcontract No.
MI Quote No.

Please Check One:
☑ More samples to follow
☐ No Additional Samples

Report Type: ☑ Standard (default) ☐ Microbial Insights Level III raw data(15% surcharge) ☐ Microbial Insights Level IV (25% surcharge) ☐ Comprehensive Interpretive(15%) ☐ Historical Interpretive (30%)
EDD type: ☐ Microbial Insights Standard (default) ☐ All other available EDDs (5% surcharge) Specify EDD Type:

Please contact us with any questions about the analyses or filling out the COC at (865) 573-8188 (9:00 am to 5:00 pm EST, M-F). After hours email: customerservice@microbe.com

Sample Information					Analyses					CENSUS: Please select the target organism/gene																							
MI ID (Laboratory Use Only)	Sample Name	Date Sampled	Time Sampled	Matrix	PLFA	DGGE+3ID	DGGE+5ID	QuantArray Chlor	QuantArray Petro	DHC (Dehalococcoides)	DHC Functional genes (vcr, tce, vcr)	DHBt (Dehalobacter)	DSM (Desulfuromonas)	DSB (Desulfitobacterium)	EBAC (Total)	SRB (Sulfate Reducing Bacteria-APS)	MGN (Methanogens)	MOB (Methanotrophs)	SMMO	DNF (Denitrifiers-nirS and nirK)	AOB (ammonia oxidizing bacteria)	PMI (MTBE aerobic)	RMO (Toluene Monooxygenase)	TDEG (Toluene Monooxygenase)	PHE (Phenol Hydroxylase)	NAH (Napthalene-aerobic)	BSSA (Toluene/Xylene-Anaerobic)	add. qPCR:	add. qPCR:	RNA (Expression Option)*	Other:	Other:	Other:
005RL 1	03WW01_120120	12/1/20	0720	WG							X	X																					
2	35AWW08_120120	12/1/20	0820	WG							X	X																					
3	35AWW11_120120	12/1/20	0915	WG							X	X																					
4	35AWW06_120120	12/1/20	1020	WG							X	X																					

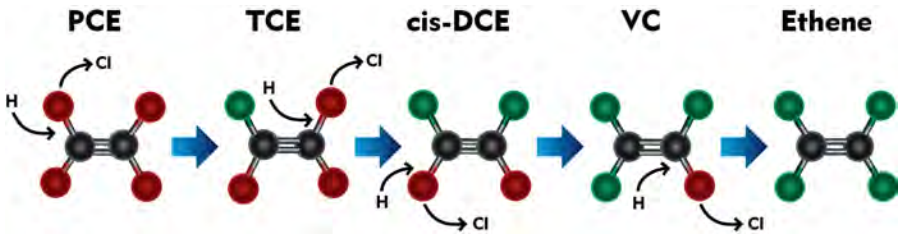
Relinquished by: [signature] 12/1/20 1430 Received by: [signature] Date 12/2/20 1030

It is vital that chain of custody is filled out correctly & that all relative information is provided.
Failure to provide sufficient and/or correct information regarding reporting, invoicing & analyses requested information may result in delays for which MI will not be liable.

DHC Interpretation

Dehalococcoides 16S rRNA gene (qDHC)

Under anaerobic conditions, tetrachloroethene (PCE) and trichloroethene (TCE) can undergo sequential reductive dechlorination through the daughter products *cis*-dichloroethene (*cis*-DCE) and vinyl chloride to nontoxic ethene (1,2).



While a number of bacterial cultures capable of utilizing PCE and TCE as growth supporting electron acceptors have been isolated (3-7), *Dehalococcoides* spp. may be the most important because they are the only bacterial group that has been isolated to date which is capable of complete reductive dechlorination of PCE to ethene (8). In fact, the presence of *Dehalococcoides* spp. has been associated with complete dechlorination to ethene at sites across North America and Europe (9).

Status	*Dehalococcoides spp.*	Observation
	≥ 10^4 (cells/mL)	Lu et al. proposed that a concentration of 1 x 10^4 DHC cells/mL could be used as a screening criterion to identify sites where reductive dechlorination will yield a generally useful biodegradation rate (10). Similarly, in an internal study conducted with nearly 1000 groundwater samples obtained from sites across the US, ethene production was observed in approximately 80% of samples in which CENSUS® qDHC results were greater than or equal to 10^4 DHC cells/mL.
	10^1 to < 10^4 (cells/mL)	When vinyl chloride reductase genes (See DHC functional genes discussion below) are also detected, complete reductive dechlorination of PCE and TCE to ethene may still occur even with moderate DHC concentrations. When the DHC population is below the 10^4 cells/mL criterion proposed by Lu et al. (10), project managers should carefully consider other site-specific data to determine whether subsurface conditions may be limiting reductive dechlorination. For example, the addition of an electron donor may be able to stimulate DHC growth and enhance anaerobic bioremediation.
	< 10^1 (cells/mL)	DHC concentrations are low suggesting that complete reductive dechlorination of PCE and TCE to ethene is unlikely to occur under existing conditions. Enhanced anaerobic bioremediation options (biostimulation or bioaugmentation) may need to be considered.

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DHC Interpretation

DHC Functional Genes (*tce*A, *bvc*A, *vcr*A)

A "stall" where daughter products *cis*-DCE and vinyl chloride accumulate can occur at PCE- and TCE-impacted sites especially under MNA conditions. The accumulation of vinyl chloride, generally considered more carcinogenic than the parent compounds, is particularly problematic. Although elevated *Dehalococcoides* concentrations correspond to ethene production in numerous studies, the range of chlorinated ethenes metabolized and cometabolized varies among species and strains within the *Dehalococcoides* genus. For example, *Dehalococcoides ethenogenes* str. 195 metabolizes PCE, TCE, and *cis*-DCE and cometabolizes vinyl chloride (8) to produce ethene. Conversely, *Dehalococcoides* sp. CBDB1 utilizes PCE and TCE but does not cometabolize additional chloroethenes (11). Other *Dehalococcoides* strains, such as BAV1, GT and VS, are known to fully dechlorinate cis-DCE and VC to ethene (14,16,19). Quantification of reductive dehalogenase genes is used to more definitively confirm the potential for reductive dechlorination of TCE, cis-DCE, and vinyl chloride (12-15).

Functional Gene	Observation
TCE Reductase	
***tce*A gene**	The *tce*A gene encodes the enzyme responsible for reductive dechlorination of TCE to *cis*-DCE in some strains of *Dehalococcoides*. Absence of *tce*A does not preclude the potential for reductive dechlorination of TCE in the field since the *tce*A gene is not universally distributed among all DHC and is not present in other microorganisms capable of reductive dechlorination of TCE (e.g. *Dehalobacter*). Detection of the *tce*A gene provides an additional line of evidence indicating the potential for dechlorination of TCE.
Vinyl Chloride Reductase	
***bvc*A gene**	The *bvc*A gene encodes the vinyl chloride reductase enzyme responsible for reductive dechlorination of vinyl chloride to ethene by *Dehalococcoides* sp. str. BAV1 (16). Presence of *bvc*A gene indicates the potential for reductive dechlorination of VC to ethene. Absence of both *bvc*A and *vcr*A genes suggests VC may accumulate. An internal study with ~1,000 samples showed ethene production was observed in 80% of the samples that the DHC population was greater than or equal to 10^4 cells/mL. The *bvc*A gene was detected in over 50% of these samples. Van Der Zaan et al (17) noted that the bvcA gene was the only VC reductase gene detected at three of their sites. Alfred Spormann's laboratory at Stanford University (18) reported that the *bvc*A gene was the most abundant and active at the outflow of a PCE fed column study. This section of the column was in the DCE to VC stages of reductive dechlorination thus confirming the importance of the *bvc*A gene for complete reductive dechlorination.
***vcr*A gene**	The *vcr*A gene encodes the vinyl chloride reductase enzyme responsible for reductive dechlorination of *cis*-DCE and vinyl chloride by *Dehalococcoides* sp. strain VS (14). Presence of *vcr*A gene indicates the potential for reductive dechlorination of DCE and/or VC to ethene. Absence of both *bvc*A and *vcr*A genes suggest VC may accumulate. As with the *bvc*A gene, detection of the *vcr*A gene is associated with ethene production in internal studies (67%) and vinyl chloride reduction in independent studies (14, 17).

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DHC Interpretation

Reporting

Microbial Insights can provide a variety of data packages and reporting levels to suit the needs of any project. Data packages range from simple analytical reports with results only to more complex data packages that include a report narrative, analytical results, QC data, and supporting materials including all raw data and chain-of-custody documentation. The figure below shows our standard report and explains the way values are reported.

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CENSUS

Client: Company Name
Project: Your Project Name

MI Project Number: Unique Laboratory Identifier
Date Received: Date Samples Arrived

Sample Information

Client Sample ID:		Sample A	Sample B	Sample C
Sample Date:		00/00/0000	00/00/0000	00/00/0000
Units:		cells/mL	cells/mL	cells/mL
Analyst:		Intials	Intials	Intials
Dechlorinating Bacteria				
Dehalococcoides spp.	DHC	**1.84E+05**	**2.76E+02**	**2.28E+01 (J)**
Functional Genes				
tceA Reductase	TCE	**6.00E+01**	**3.23E+01**	<4.00E-01
bvcA Reductase	BVC	**1.17E+04**	**1.81E+01**	<4.00E-01
vcrA Reducatase	VCR	**8.42E+04**	**1.74E+02**	<4.00E-01

"J" value
Result is an estimated value. This data qualifier (flag) is used when the target gene is detected but at a concentration or abundance below the practical quantification limit (PQL).

Legend:
NA = Not Analyzed NS = Not Sampled J = Estimated gene copies below PQL but above LQL I = Inhibited
< = Result not detected

< value
The target gene was not detected at the limit of quantitation (LOQ) reported for that sample.

"I" value
QA Procedure indicated that the sample may have exhibited PCR inhibition. Although relatively rare, PCR inhibition can occur due to the presence of metals or humic acids at high concentrations in the sample.

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DHC Interpretation

Quality Assurance

Microbial Insights' comprehensive Quality Assurance (QA) Program is the foundation of all laboratory analyses, ensuring that our clients receive high-quality analytical services that are timely, reliable, and meet their intended purpose in a cost effective manner. MI is committed to providing quality data that surpasses regulatory and industry standards, thus enabling the client to make well-informed decisions. MI maintains strict standard operating procedures and QA/QC measures throughout all of the analyses offered. The following Table details specific QA/QC procedures that are used for CENSUS.

QA/QC	Description
Date of Extraction	DNA and RNA extractions are performed the day the samples are received by MI to minimize the possibility of any changes to the microbial community prior to analysis.
Laboratory Method Blanks	An extraction blank (no sample added) is processed alongside each set of field samples from DNA extraction through CENSUS® analysis to ensure that cross contamination has not occurred. Although MI has never experienced this issue, the detection of the CENSUS® target (e.g. *Dehalococcoides*) in an extraction blank is direct evidence of cross contamination with a sample or contamination of a reagent and would invalidate the results. If this were to occur, MI would re-extract the sample. If not possible to re-extract, MI would contact the client immediately and notate it on the laboratory report.
Laboratory Control Samples (LCS)	A laboratory control sample (LCS) or positive control (target DNA) is included with each CENSUS® plate to confirm amplification and as a continuing calibration check.
Negative Controls	A negative control (no DNA) is included with each CENSUS plate to ensure that cross contamination has not occurred during amplification. As with the extraction blank, detection of CENSUS target (e.g. DHC) in a negative control is direct evidence of contamination and would invalidate the results. If this were to occur, MI would rerun the analysis.

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How to Use Estimated Percentile Ranks from the Microbial Insights Database

The MI Database and Client Portal

The Microbial Insights Database is the largest collection of field concentrations of key microorganisms and functional genes currently containing qPCR and QuantArray results for more than 32,000 unique groundwater, soil, and sediment samples from all 50 states and 33 countries worldwide. Driven by field samples, the database reflects the impacts of common contaminants, geochemical conditions, and site management practices on critical microbial populations.

With your report, you received a passcode enabling you to retrieve estimates of the percentile ranks of your results based on those compiled in the MI database at no additional charge. When accessing the database, you will be asked to provide background information about the sample (e.g. contaminant concentrations) to aid in understanding the links between environmental conditions and microbial populations. As with all client information provided to MI, site specific data will be treated as confidential.

Is that low, medium or high?

In practice, biodegradation depends not just on the presence but the actual concentrations of the contaminant degrading microorganisms. Simply put, qPCR and QuantArray results demonstrating high concentrations of target microorganisms or functional genes suggest in situ selection, enrichment and growth of those specific contaminant degraders and therefore a greater probability that monitored natural attenuation (MNA) or bioremediation will be successful.

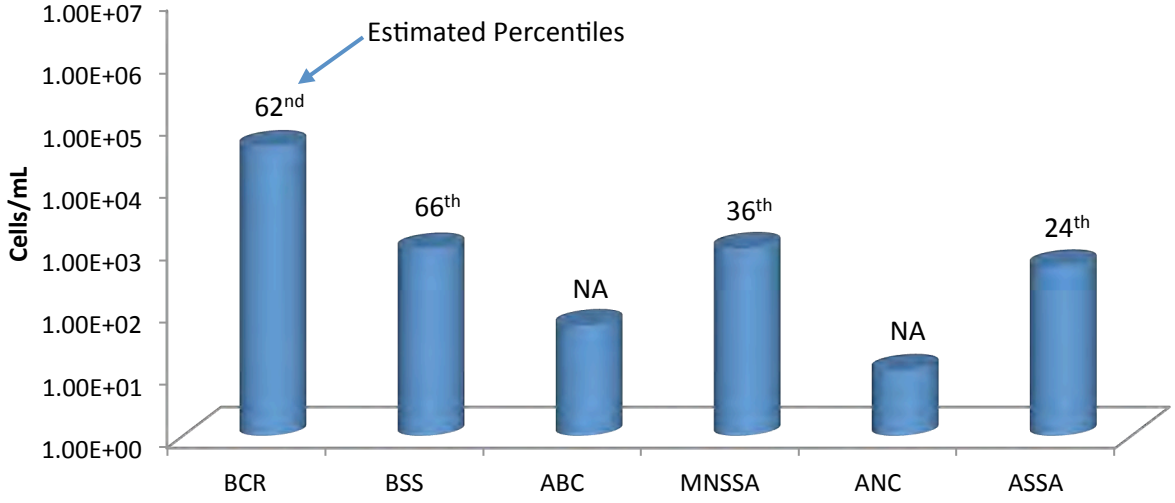
Is that a low, medium, or high concentration? The estimated percentile ranks retrieved from the MI Database answer that question by comparing your qPCR and QuantArray results to those of the literally thousands of other environmental samples submitted to MI for analysis over the last 20+ years.

Using the Estimated Percentile - Interpretation Examples

MNA Assessment – Petroleum Hydrocarbon Site:

Whenever possible, interpretation of qPCR and QuantArray results should include comparisons between samples obtained from background and impacted wells. The estimated percentile ranks however provide an additional avenue for comparison and evaluation of treatment options as shown below.

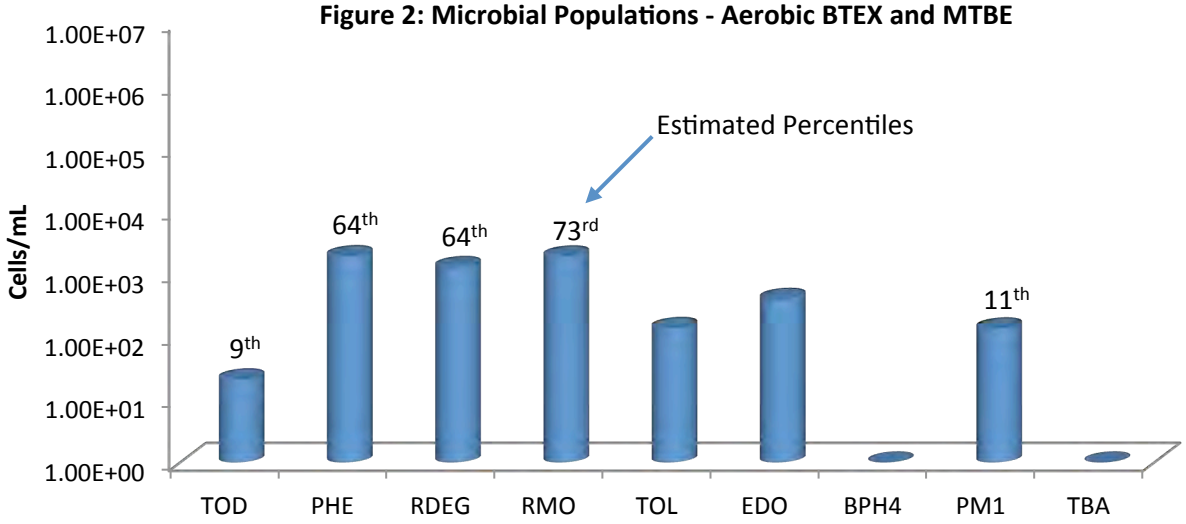
Figure 1: Microbial Populations - Anaerobic BTEX and PAHs



Anaerobic BTEX and PAH Biodegradation (Figure 1):

- With moderate concentrations of functional genes involved in anaerobic BTEX metabolism detected, the QuantArray-Petro® results were encouraging in terms of evaluating biodegradation potential under existing site conditions.
- More specifically, benzylsuccinate synthase (BSS) was detected on the order of nearly 10^3 cells/mL indicating the presence of a substantial population (66^{th} percentile) capable of anaerobic biodegradation of toluene and other alkyl substituted benzenes.
- Naphthyl-2-methylsuccinate synthase (MNSSA) and alkylsuccinate synthase (ASSA) genes were also detected indicating the potential for anaerobic biodegradation of 2-methylnaphthalene and normal alkanes.
- The concentration of MNSSA genes would be considered modest with an estimated percentile of 36^{th}.
- While the percentile rank for MNSSA would be "below average", a number of additional factors should be considered.
    - First, anaerobic hydrocarbon degraders are less prevalent than aerobic BTEX degraders and overall detection frequencies for many genes involved in anaerobic hydrocarbon biodegradation are less than 50%.
    - Therefore, the detection of genes like BSS, MNSSA, ASSA, anaerobic benzene carboxylase (ABC), and anaerobic naphthalene carboxylase (ANC) even at low concentrations is certainly noteworthy and inherently "better than average".
    - The estimated percentiles for all assays are based only on samples where the concentration of the target gene was greater than the practical quantitation limit (PQL).
    - For less commonly detected targets like many of the genes involved in anaerobic hydrocarbon biodegradation this is an especially important consideration.
    - Excluding samples where a gene target is below the PQL ensured that the median concentrations of less commonly detected targets would not be unduly biased low by the fact that the gene is not detected in most samples.
- Anaerobic benzene carboxylase (ABC) and naphthalene carboxylase (ANC) genes were also detected indicating the presence of bacterial populations capable of anaerobic biodegradation of benzene and naphthalene.
- For newly identified genes like ABC and ANC, estimated percentile ranks are not yet available due to the limited number of field samples that have been analyzed to date.
- However, like MNSSA and other genes involved in anaerobic hydrocarbon biodegradation, ABC and ANC detection frequencies are relatively low so the detection of these genes even at low concentrations should be considered when evaluating biodegradation potential under existing site conditions.

Figure 2: Microbial Populations - Aerobic BTEX and MTBE



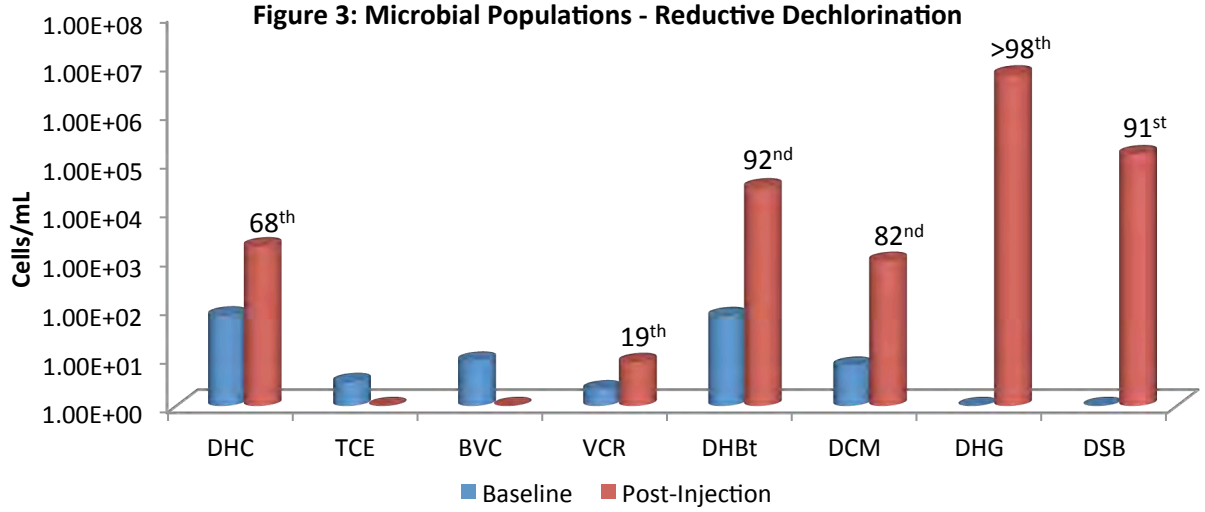
Aerobic BTEX and MTBE Biodegradation (Figure 2):

- With growing evidence that aromatic oxygenases function at low dissolved oxygen concentrations, aerobic BTEX biodegradation pathways should also be evaluated when considering MNA.
- Again, the QuantArray-Petro results were encouraging – genes encoding the first step in multiple pathways for aerobic BTEX biodegradation were detected indicating the presence of a diverse population of aerobic BTEX degraders.
- However, aerobic BTEX degraders are often considered ubiquitous. Therefore answering the question "Is that low, medium or high?" becomes especially important when evaluating aerobic BTEX biodegradation at petroleum hydrocarbon sites.
- In this case, the estimated percentile ranks of the concentrations of toluene/benzene monooxygenase (RMO and RDEG) and phenol hydroxylase (PHE) genes ranged from the 64th to 73rd percentile.
- In other words, the concentrations of RMO, RDEG, and PHE detected in this groundwater sample were greater than the concentrations detected in 64% to 73% of all other groundwater samples where these genes were analyzed and detected above the PQL.
- Aerobic BTEX degraders are common in the environment, but in this sample concentrations of toluene/benzene monooxygenase genes could be viewed as "better than average" when compared to the MI Database.

Biostimulation – Chlorinated Solvent Site:

Whenever possible, interpretation of qPCR and QuantArray results should include comparisons between baseline and post-injection monitoring events as shown below (Figure 3). The estimated percentile ranks however provide an additional avenue for comparison and evaluation of remedy performance.

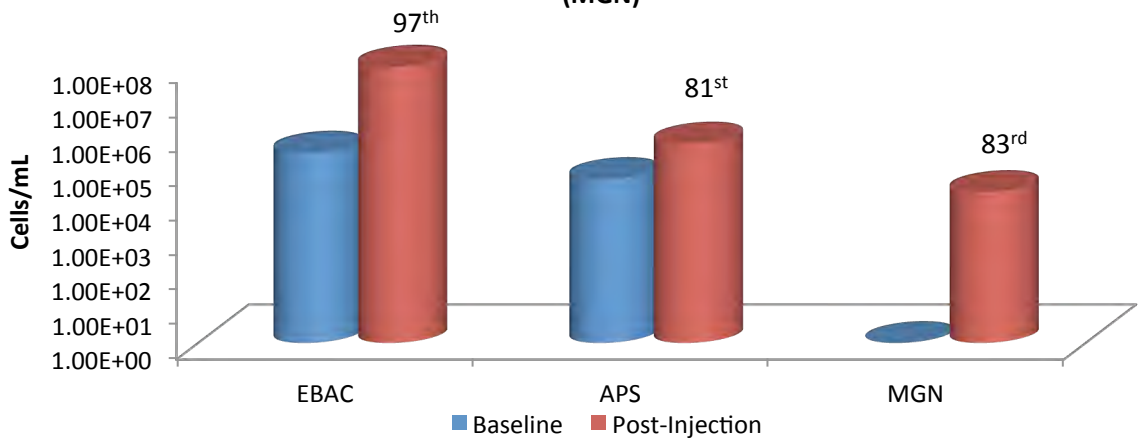
Figure 3: Microbial Populations - Reductive Dechlorination



- During the baseline groundwater sampling event, *Dehalococcoides* and vinyl chloride reductase genes were detected indicating the potential for complete reductive dechlorination of PCE and TCE to ethene.
- However, the *Dehalococcoides* concentration was well below the 10^4 cells/mL recommended by Lu et al. (2006) for generally effective rates of reductive dechlorination.
- Based on qPCR results as well as traditional groundwater monitoring, biostimulation with electron donor addition was selected as the site management plan.
- By the first monitoring event after injection, populations of halorespiring bacteria had increased substantially in response to electron donor addition.
    - *Dehalobacter* populations increased by more than two orders of magnitude to post-injection concentrations greater than 10^4 cells/mL (92^{nd} percentile).
    - *Dehalogenimonas* (10^6 cells/mL) and *Desulfitobacterium* (10^5 cells/mL) which had not been detected prior electron donor addition were present at concentrations greater than observed in over 90% of other groundwater samples where these halorespiring bacteria were detected.
- After injection, *Dehalococcoides* populations increased by more than an order of magnitude to a concentration of over 10^3 cells/mL (68^{th} percentile) demonstrating growth of this key group of halorespiring bacteria.
- Despite a substantial increase and a "better than average" concentration, the *Dehalococcoides* population was still below the 10^4 cells/mL threshold and vinyl chloride reductase gene copies were low (19^{th} percentile).
    - In terms of electron donors and acceptors, the metabolic capabilities of *Dehalococcoides* are rather specialized (hydrogen utilizing obligate halorespiring bacteria) so the median concentration is low. With a low median concentration across the database, a "better than average" *Dehalococcoides* concentration in a given sample may not exceed the 10^4 cells/mL threshold established for effective reductive dechlorination (Lu et al. 2006) and ethene production (Microbial Insights, unpublished data).

- In this case, the initial growth of *Dehalococcoides* was substantial but may have been somewhat hindered by competition with sulfate reducing bacteria (Figure 4 below).
    - The baseline population of sulfate reducing bacteria was moderate (10^4 cells/mL; 63rd percentile). Consistent with an observed decreased in dissolved sulfate concentrations, populations of sulfate reducing bacteria increased and were detected at a relatively high concentration (81st percentile) after electron donor addition.
    - After injection, methanogen populations also increased to a relatively high concentration (83rd percentile) suggesting generation of methanogenic conditions.
- With sulfate depletion and generation of highly anaerobic conditions more conducive to reductive dechlorination, *Dehalococcoides* populations may continue to increase and exceed the 10^4 *Dehalococcoides* cells/mL threshold in subsequent monitoring events.
- Overall, QuantArray analysis conclusively demonstrated that electron donor addition stimulated growth of halorespiring bacteria with the estimated percentiles retrieved from the MI Database providing the "low, medium or high" perspective to the observed changes in microbial populations.

Figure 4: Total Bacteria (EBAC), Sulfate Reducering Bacteria (APS) and Methanogens (MGN)



References

Lu, X., J.T. Wilson, and D.H. Kampbell. 2006. Relationship between *Dehalococcoides* DNA in ground water and rates of reductive dechlorination at field scale. *Water Research* 40 no. 16: 3131-3140.

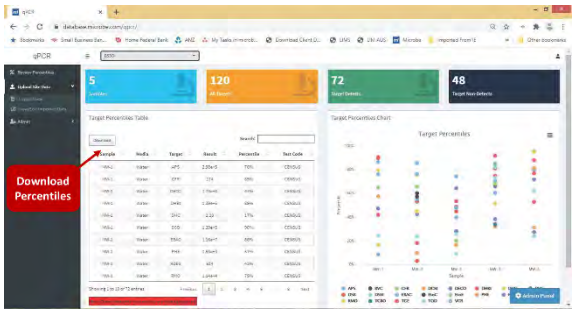
How to Retrieve and Use Percentile Ranks from the Microbial Insights Database

The MI Database

The Microbial Insights Database is the largest collection of field concentrations of key microorganisms and functional genes currently containing qPCR and QuantArray results for more than 70,000 unique groundwater, soil, and sediment samples from all 50 states and 33 countries worldwide.

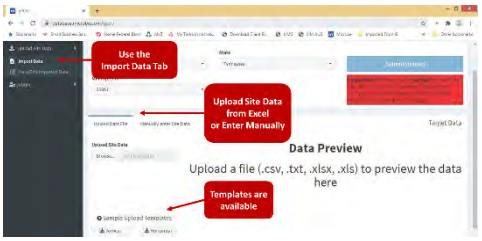
Is that low, medium or high?

In practice, biodegradation depends not just on the presence but the actual concentrations of the contaminant degrading microorganisms. The percentile ranks retrieved from the MI Database answer the question "Is that low, medium or high?" by comparing your results to those of the literally thousands of other environmental samples submitted to MI for analysis.



Retrieving Estimated Percentile Ranks

When you receive your report, you will be emailed a link enabling you to login to the Microbial Insights Database. Click the link and use the Upload Site Data Tab to enter basic information about the sample (e.g. contaminant concentrations) to aid in understanding the links between environmental conditions and microbial populations. Once the site data is entered, you will be able to retrieve the percentile ranks of your results based on those compiled in the MI database at no additional charge.



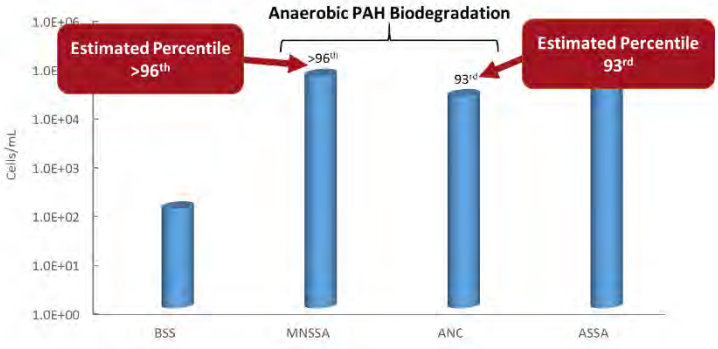
All site specific data is treated as confidential and uploading is easy.

You can even upload chemical and geochemical data from EDDs. Just save as a Tab Delimited text file.

Example - Using Estimated Percentile for MNA Assessment at an MGP Site

CENSUS® qPCR was performed to quantify anaerobic naphthalene carboxylase (ANC) and naphthyl-2-methylsuccinate synthase (MNSSA) to assess anaerobic biodegradation of naphthalene and methyl-naphthalene under existing site conditions.

- Not only were ANC and MNSSA genes detected, but these functional genes responsible for anaerobic biodegradation of PAHs were present at high concentrations based on the percentile ranks.
- Demonstrating high concentrations of ANC and MNSSA gave an additional line of evidence indicating growth substantial populations of anaerobic PAH degraders and suggested a greater probability that monitored natural attenuation (MNA) will be successful.



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December 30, 2020

Marcia Olive
Bhate Environmental Associates, Inc.
445 Union Blvd Ste 129
Lakewood, CO 80228

Work Order: **HS20120247**

Laboratory Results for: **LHAAP / Site 58**

Dear Marcia Olive,

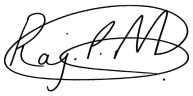
ALS Environmental received 8 sample(s) on Dec 04, 2020 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,



Generated By: JUMOKE.LAWAL
RJ Modashia
Project Manager

ALS Houston, US Date: 30-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
Work Order: HS20120247

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS20120247-01	35AWW20_120320	Groundwater		03-Dec-2020 07:25	04-Dec-2020 10:15	☐
HS20120247-02	LHSMW07_120320	Groundwater		03-Dec-2020 08:15	04-Dec-2020 10:15	☐
HS20120247-03	35AWW05_120320	Groundwater		03-Dec-2020 09:10	04-Dec-2020 10:15	☐
HS20120247-04	35AWW23_120320	Groundwater		03-Dec-2020 09:55	04-Dec-2020 10:15	☐
HS20120247-05	35AWW19_120320	Groundwater		03-Dec-2020 10:45	04-Dec-2020 10:15	☐
HS20120247-06	35AWW24_120320	Groundwater		03-Dec-2020 11:40	04-Dec-2020 10:15	☐
HS20120247-07	LHSMW06_120320	Groundwater		03-Dec-2020 12:30	04-Dec-2020 10:15	☐
HS20120247-08	Trip Blank	Water		03-Dec-2020 00:00	04-Dec-2020 10:15	☐

ALS Houston, US Date: 30-Dec-20

Client: Bhate Environmental Associates, Inc. **CASE NARRATIVE**
Project: LHAAP / Site 58
Work Order: HS20120247

Work Order Comments

• The analysis for VFAs was subcontracted to ALS Rochester NY Final report attached.

The analysis for MEE plus CO2 was subcontracted to ALS Simi Valley CA. Final report attached.

The analysis for TOC was subcontracted to ALS Kelso, WA. Final report attached.

The analyses for DHC/DHB were subcontracted to Microbial Insights in Knoxville, TN. Final Report attached.

GCMS Volatiles by Method SW8260

Batch ID: R374913

Sample ID: 35AWW24_120320(HS20120247-06MSD)

• The RPD between the MS and MSD was outside of the control limit.

Sample ID: VLCSW-201217

• 1,2,3_Trichlorobenzene exceeded QC limits for LCS. Samples are ND for this compound.

Metals by Method SW6020

Batch ID: 160930

• The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method SW9056

Batch ID: R374034

Sample ID: LHSMW07_120320 (HS20120247-02)

• Sample ran at 2X due to high concentration of Chloride & Sulfate

Batch ID: R375028

Sample ID: HS20120396-54MS

• MS and MSD are for an unrelated sample (Sulfate)

ALS Houston, US Date: 30-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
Sample ID: 35AWW20_120320
Collection Date: 03-Dec-2020 07:25

ANALYTICAL REPORT
WorkOrder:HS20120247
Lab ID:HS20120247-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 15:47
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 15:47
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	ug/L	1	17-Dec-2020 15:47
1,1,2-Trichloroethane	**73**		**0.30**	**0.50**	**1.0**	**ug/L**	1	17-Dec-2020 15:47
1,1-Dichloroethane	**550**		**5.0**	**12**	**25**	**ug/L**	25	17-Dec-2020 18:36
1,1-Dichloroethene	**950**		**5.0**	**12**	**25**	**ug/L**	25	17-Dec-2020 18:36
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 15:47
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 15:47
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	17-Dec-2020 15:47
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	17-Dec-2020 15:47
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 15:47
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 15:47
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 15:47
1,2-Dichlorobenzene	**22**		**0.50**	**1.0**	**1.0**	**ug/L**	1	17-Dec-2020 15:47
1,2-Dichloroethane	**16**		**0.20**	**0.50**	**1.0**	**ug/L**	1	17-Dec-2020 15:47
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	17-Dec-2020 15:47
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 15:47
1,3-Dichlorobenzene	**1.0**		**0.40**	**1.0**	**1.0**	**ug/L**	1	17-Dec-2020 15:47
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 15:47
1,4-Dichlorobenzene	**3.8**		**0.40**	**1.0**	**1.0**	**ug/L**	1	17-Dec-2020 15:47
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 15:47
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	17-Dec-2020 15:47
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 15:47
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	17-Dec-2020 15:47
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 15:47
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 15:47
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	17-Dec-2020 15:47
Acetone	1.0	U	0.40	1.0	2.0	ug/L	1	17-Dec-2020 15:47
Benzene	**8.2**		**0.20**	**0.50**	**1.0**	**ug/L**	1	17-Dec-2020 15:47
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 15:47
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 15:47
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 15:47
Bromoform	0.50	U	0.40	0.50	1.0	ug/L	1	17-Dec-2020 15:47
Bromomethane	0.50	U	0.40	0.50	1.0	ug/L	1	17-Dec-2020 15:47
Carbon disulfide	1.0	U	0.60	1.0	2.0	ug/L	1	17-Dec-2020 15:47
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	ug/L	1	17-Dec-2020 15:47
Chlorobenzene	**0.56**	J	**0.30**	**0.50**	**1.0**	**ug/L**	1	17-Dec-2020 15:47
Chloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 15:47
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 15:47

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 30-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
Sample ID: 35AWW20_120320
Collection Date: 03-Dec-2020 07:25

ANALYTICAL REPORT
WorkOrder:HS20120247
Lab ID:HS20120247-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 15:47
cis-1,2-Dichloroethene	**63**		**0.20**	**0.50**	**1.0**	**ug/L**	1	17-Dec-2020 15:47
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	17-Dec-2020 15:47
Dibromochloromethane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 15:47
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 15:47
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 15:47
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 15:47
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	17-Dec-2020 15:47
Isopropylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 15:47
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	17-Dec-2020 15:47
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	17-Dec-2020 15:47
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 15:47
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 15:47
Naphthalene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 15:47
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 15:47
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 15:47
Styrene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 15:47
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 15:47
Tetrachloroethene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 15:47
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 15:47
trans-1,2-Dichloroethene	**6.7**		**0.20**	**0.50**	**1.0**	**ug/L**	1	17-Dec-2020 15:47
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 15:47
Trichloroethene	**91**		**0.20**	**0.50**	**1.0**	**ug/L**	1	17-Dec-2020 15:47
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 15:47
Vinyl chloride	**1,800**		**5.0**	**12**	**25**	**ug/L**	25	17-Dec-2020 18:36
Surr: 1,2-Dichloroethane-d4	*94.1*			**0**	*81-118*	*%REC*	*1*	*17-Dec-2020 15:47*
Surr: 1,2-Dichloroethane-d4	*90.9*			**0**	*81-118*	*%REC*	*25*	*17-Dec-2020 18:36*
Surr: 4-Bromofluorobenzene	*96.7*			**0**	*85-114*	*%REC*	*1*	*17-Dec-2020 15:47*
Surr: 4-Bromofluorobenzene	*95.3*			**0**	*85-114*	*%REC*	*25*	*17-Dec-2020 18:36*
Surr: Dibromofluoromethane	*90.2*			**0**	*80-119*	*%REC*	*1*	*17-Dec-2020 15:47*
Surr: Dibromofluoromethane	*90.7*			**0**	*80-119*	*%REC*	*25*	*17-Dec-2020 18:36*
Surr: Toluene-d8	*102*			**0**	*89-112*	*%REC*	*1*	*17-Dec-2020 15:47*
Surr: Toluene-d8	*102*			**0**	*89-112*	*%REC*	*25*	*17-Dec-2020 18:36*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: YP
Chloride	**727**		**10.0**	**25.0**	**25.0**	**mg/L**	50	18-Dec-2020 19:25
Nitrogen, Nitrate (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	04-Dec-2020 16:15
Nitrogen, Nitrite (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	04-Dec-2020 16:15
Sulfate	**1,070**		**10.0**	**25.0**	**25.0**	**mg/L**	50	18-Dec-2020 19:25

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 30-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
Sample ID: 35AWW20_120320
Collection Date: 03-Dec-2020 07:25

ANALYTICAL REPORT
WorkOrder:HS20120247
Lab ID:HS20120247-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - DHC/DHB		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	23-Dec-2020 17:43
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUBCA
Subcontract Analysis	See Attached		0	0		NA	1	16-Dec-2020 12:44
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	22-Dec-2020 13:05
SUBCONTRACT ANALYSIS - VOLATILE FATTY ACIDS		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	30-Dec-2020 15:38

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 30-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
Sample ID: LHSMW07_120320
Collection Date: 03-Dec-2020 08:15

ANALYTICAL REPORT
WorkOrder:HS20120247
Lab ID:HS20120247-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 18:57
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 18:57
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	ug/L	1	17-Dec-2020 18:57
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 18:57
1,1-Dichloroethane	**7.8**		**0.20**	**0.50**	**1.0**	**ug/L**	1	17-Dec-2020 18:57
1,1-Dichloroethene	**64**		**0.20**	**0.50**	**1.0**	**ug/L**	1	17-Dec-2020 18:57
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 18:57
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 18:57
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	17-Dec-2020 18:57
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	17-Dec-2020 18:57
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 18:57
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 18:57
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 18:57
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	17-Dec-2020 18:57
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 18:57
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	17-Dec-2020 18:57
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 18:57
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 18:57
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 18:57
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 18:57
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 18:57
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	17-Dec-2020 18:57
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 18:57
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	17-Dec-2020 18:57
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 18:57
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 18:57
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	17-Dec-2020 18:57
Acetone	1.0	U	0.40	1.0	2.0	ug/L	1	17-Dec-2020 18:57
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 18:57
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 18:57
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 18:57
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 18:57
Bromoform	0.50	U	0.40	0.50	1.0	ug/L	1	17-Dec-2020 18:57
Bromomethane	0.50	U	0.40	0.50	1.0	ug/L	1	17-Dec-2020 18:57
Carbon disulfide	1.0	U	0.60	1.0	2.0	ug/L	1	17-Dec-2020 18:57
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	ug/L	1	17-Dec-2020 18:57
Chlorobenzene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 18:57
Chloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 18:57
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 18:57

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 30-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
Sample ID: LHSMW07_120320
Collection Date: 03-Dec-2020 08:15

ANALYTICAL REPORT
WorkOrder:HS20120247
Lab ID:HS20120247-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 18:57
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 18:57
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	17-Dec-2020 18:57
Dibromochloromethane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 18:57
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 18:57
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 18:57
Ethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 18:57
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	17-Dec-2020 18:57
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 18:57
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	17-Dec-2020 18:57
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	17-Dec-2020 18:57
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 18:57
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 18:57
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 18:57
o-Xylene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 18:57
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 18:57
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 18:57
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 18:57
Tetrachloroethene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 18:57
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 18:57
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 18:57
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 18:57
Trichloroethene	**2.1**		**0.20**	**0.50**	**1.0**	**ug/L**	1	17-Dec-2020 18:57
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 18:57
Vinyl chloride	**42**		**0.20**	**0.50**	**1.0**	**ug/L**	1	17-Dec-2020 18:57
Surr: 1,2-Dichloroethane-d4	*91.0*			**0**	*81-118*	*%REC*	*1*	*17-Dec-2020 18:57*
Surr: 4-Bromofluorobenzene	*95.6*			**0**	*85-114*	*%REC*	*1*	*17-Dec-2020 18:57*
Surr: Dibromofluoromethane	*90.5*			**0**	*80-119*	*%REC*	*1*	*17-Dec-2020 18:57*
Surr: Toluene-d8	*103*			**0**	*89-112*	*%REC*	*1*	*17-Dec-2020 18:57*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: YP
Chloride	**1,650**		**20.0**	**50.0**	**50.0**	**mg/L**	100	18-Dec-2020 19:43
Nitrogen, Nitrate (As N)	0.200	U	0.0600	0.200	0.200	mg/L	2	04-Dec-2020 16:33
Nitrogen, Nitrite (As N)	0.200	U	0.0600	0.200	0.200	mg/L	2	04-Dec-2020 16:33
Sulfate	**2,650**		**20.0**	**50.0**	**50.0**	**mg/L**	100	18-Dec-2020 19:43
SUBCONTRACT ANALYSIS - DHC/DHB		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	23-Dec-2020 17:43
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUBCA
Subcontract Analysis	See Attached		0	0		NA	1	16-Dec-2020 12:44

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 30-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
Sample ID: LHSMW07_120320
Collection Date: 03-Dec-2020 08:15

ANALYTICAL REPORT
WorkOrder:HS20120247
Lab ID:HS20120247-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	22-Dec-2020 13:05
SUBCONTRACT ANALYSIS - VOLATILE FATTY ACIDS		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	30-Dec-2020 15:38

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 30-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
Sample ID: 35AWW05_120320
Collection Date: 03-Dec-2020 09:10

ANALYTICAL REPORT
WorkOrder:HS20120247
Lab ID:HS20120247-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 19:18
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 19:18
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	ug/L	1	17-Dec-2020 19:18
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 19:18
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 19:18
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 19:18
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 19:18
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 19:18
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	17-Dec-2020 19:18
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	17-Dec-2020 19:18
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 19:18
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 19:18
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 19:18
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	17-Dec-2020 19:18
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 19:18
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	17-Dec-2020 19:18
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 19:18
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 19:18
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 19:18
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 19:18
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 19:18
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	17-Dec-2020 19:18
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 19:18
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	17-Dec-2020 19:18
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 19:18
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 19:18
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	17-Dec-2020 19:18
Acetone	1.0	U	0.40	1.0	2.0	ug/L	1	17-Dec-2020 19:18
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 19:18
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 19:18
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 19:18
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 19:18
Bromoform	0.50	U	0.40	0.50	1.0	ug/L	1	17-Dec-2020 19:18
Bromomethane	0.50	U	0.40	0.50	1.0	ug/L	1	17-Dec-2020 19:18
Carbon disulfide	1.0	U	0.60	1.0	2.0	ug/L	1	17-Dec-2020 19:18
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	ug/L	1	17-Dec-2020 19:18
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 19:18
Chloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 19:18
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 19:18

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 30-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
Sample ID: 35AWW05_120320
Collection Date: 03-Dec-2020 09:10

ANALYTICAL REPORT
WorkOrder:HS20120247
Lab ID:HS20120247-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 19:18
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 19:18
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	17-Dec-2020 19:18
Dibromochloromethane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 19:18
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 19:18
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 19:18
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 19:18
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	17-Dec-2020 19:18
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 19:18
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	17-Dec-2020 19:18
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	17-Dec-2020 19:18
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 19:18
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 19:18
Naphthalene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 19:18
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 19:18
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 19:18
Styrene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 19:18
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 19:18
Tetrachloroethene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 19:18
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 19:18
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 19:18
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 19:18
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 19:18
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 19:18
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 19:18
Surr: 1,2-Dichloroethane-d4	*91.0*			**0**	*81-118*	*%REC*	*1*	*17-Dec-2020 19:18*
Surr: 4-Bromofluorobenzene	*97.1*			**0**	*85-114*	*%REC*	*1*	*17-Dec-2020 19:18*
Surr: Dibromofluoromethane	*90.1*			**0**	*80-119*	*%REC*	*1*	*17-Dec-2020 19:18*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*1*	*17-Dec-2020 19:18*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 30-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
Sample ID: 35AWW23_120320
Collection Date: 03-Dec-2020 09:55

ANALYTICAL REPORT
WorkOrder:HS20120247
Lab ID:HS20120247-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 19:39
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 19:39
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	ug/L	1	17-Dec-2020 19:39
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 19:39
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 19:39
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 19:39
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 19:39
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 19:39
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	17-Dec-2020 19:39
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	17-Dec-2020 19:39
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 19:39
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 19:39
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 19:39
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	17-Dec-2020 19:39
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 19:39
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	17-Dec-2020 19:39
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 19:39
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 19:39
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 19:39
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 19:39
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 19:39
2-Butanone	**68**		**0.50**	**1.0**	**2.0**	**ug/L**	1	17-Dec-2020 19:39
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 19:39
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	17-Dec-2020 19:39
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 19:39
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 19:39
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	17-Dec-2020 19:39
Acetone	**120**		**0.40**	**1.0**	**2.0**	**ug/L**	1	17-Dec-2020 19:39
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 19:39
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 19:39
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 19:39
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 19:39
Bromoform	0.50	U	0.40	0.50	1.0	ug/L	1	17-Dec-2020 19:39
Bromomethane	0.50	U	0.40	0.50	1.0	ug/L	1	17-Dec-2020 19:39
Carbon disulfide	1.0	U	0.60	1.0	2.0	ug/L	1	17-Dec-2020 19:39
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	ug/L	1	17-Dec-2020 19:39
Chlorobenzene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 19:39
Chloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 19:39
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 19:39

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 30-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
Sample ID: 35AWW23_120320
Collection Date: 03-Dec-2020 09:55

ANALYTICAL REPORT
WorkOrder:HS20120247
Lab ID:HS20120247-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 19:39
cis-1,2-Dichloroethene	**2.7**		**0.20**	**0.50**	**1.0**	**ug/L**	1	17-Dec-2020 19:39
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	17-Dec-2020 19:39
Dibromochloromethane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 19:39
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 19:39
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 19:39
Ethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 19:39
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	17-Dec-2020 19:39
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 19:39
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	17-Dec-2020 19:39
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	17-Dec-2020 19:39
n-Butylbenzene	**1.7**		**0.40**	**1.0**	**1.0**	**ug/L**	1	17-Dec-2020 19:39
n-Propylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 19:39
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 19:39
o-Xylene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 19:39
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 19:39
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 19:39
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 19:39
Tetrachloroethene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 19:39
Toluene	**1.5**		**0.20**	**0.50**	**1.0**	**ug/L**	1	17-Dec-2020 19:39
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 19:39
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 19:39
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 19:39
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 19:39
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 19:39
Surr: 1,2-Dichloroethane-d4	*90.5*			**0**	*81-118*	*%REC*	*1*	*17-Dec-2020 19:39*
Surr: 4-Bromofluorobenzene	*92.6*			**0**	*85-114*	*%REC*	*1*	*17-Dec-2020 19:39*
Surr: Dibromofluoromethane	*90.2*			**0**	*80-119*	*%REC*	*1*	*17-Dec-2020 19:39*
Surr: Toluene-d8	*102*			**0**	*89-112*	*%REC*	*1*	*17-Dec-2020 19:39*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: YP
Chloride	**958**		**20.0**	**50.0**	**50.0**	**mg/L**	100	18-Dec-2020 20:01
Nitrogen, Nitrate (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	04-Dec-2020 16:51
Nitrogen, Nitrite (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	04-Dec-2020 16:51
Sulfate	0.500	U	0.200	0.500	0.500	mg/L	1	04-Dec-2020 16:51
SUBCONTRACT ANALYSIS - DHC/DHB		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	23-Dec-2020 17:43
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUBCA
Subcontract Analysis	See Attached		0	0		NA	1	16-Dec-2020 12:44

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 30-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
Sample ID: 35AWW23_120320
Collection Date: 03-Dec-2020 09:55

ANALYTICAL REPORT
WorkOrder:HS20120247
Lab ID:HS20120247-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	22-Dec-2020 13:05
SUBCONTRACT ANALYSIS - VOLATILE FATTY ACIDS		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	30-Dec-2020 15:38

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 30-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
Sample ID: 35AWW19_120320
Collection Date: 03-Dec-2020 10:45

ANALYTICAL REPORT
WorkOrder:HS20120247
Lab ID:HS20120247-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 20:00
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 20:00
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	ug/L	1	17-Dec-2020 20:00
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 20:00
1,1-Dichloroethane	**0.89**	J	**0.20**	**0.50**	**1.0**	**ug/L**	1	17-Dec-2020 20:00
1,1-Dichloroethene	**3.2**		**0.20**	**0.50**	**1.0**	**ug/L**	1	17-Dec-2020 20:00
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 20:00
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 20:00
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	17-Dec-2020 20:00
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	17-Dec-2020 20:00
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 20:00
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 20:00
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 20:00
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	17-Dec-2020 20:00
1,2-Dichloroethane	**1.3**		**0.20**	**0.50**	**1.0**	**ug/L**	1	17-Dec-2020 20:00
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	17-Dec-2020 20:00
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 20:00
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 20:00
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 20:00
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 20:00
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 20:00
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	17-Dec-2020 20:00
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 20:00
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	17-Dec-2020 20:00
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 20:00
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 20:00
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	17-Dec-2020 20:00
Acetone	1.0	U	0.40	1.0	2.0	ug/L	1	17-Dec-2020 20:00
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 20:00
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 20:00
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 20:00
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 20:00
Bromoform	0.50	U	0.40	0.50	1.0	ug/L	1	17-Dec-2020 20:00
Bromomethane	0.50	U	0.40	0.50	1.0	ug/L	1	17-Dec-2020 20:00
Carbon disulfide	1.0	U	0.60	1.0	2.0	ug/L	1	17-Dec-2020 20:00
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	ug/L	1	17-Dec-2020 20:00
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 20:00
Chloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 20:00
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 20:00

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 30-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
Sample ID: 35AWW19_120320
Collection Date: 03-Dec-2020 10:45

ANALYTICAL REPORT
WorkOrder:HS20120247
Lab ID:HS20120247-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 20:00
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 20:00
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	17-Dec-2020 20:00
Dibromochloromethane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 20:00
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 20:00
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 20:00
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 20:00
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	17-Dec-2020 20:00
Isopropylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 20:00
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	17-Dec-2020 20:00
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	17-Dec-2020 20:00
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 20:00
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 20:00
Naphthalene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 20:00
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 20:00
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 20:00
Styrene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 20:00
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 20:00
Tetrachloroethene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 20:00
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 20:00
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 20:00
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 20:00
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 20:00
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 20:00
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 20:00
Surr: 1,2-Dichloroethane-d4	*87.6*			**0**	*81-118*	*%REC*	*1*	*17-Dec-2020 20:00*
Surr: 4-Bromofluorobenzene	*95.0*			**0**	*85-114*	*%REC*	*1*	*17-Dec-2020 20:00*
Surr: Dibromofluoromethane	*91.3*			**0**	*80-119*	*%REC*	*1*	*17-Dec-2020 20:00*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*1*	*17-Dec-2020 20:00*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: YP
Chloride	**786**		**10.0**	**25.0**	**25.0**	**mg/L**	50	18-Dec-2020 21:13
Nitrogen, Nitrate (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	04-Dec-2020 17:09
Nitrogen, Nitrite (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	04-Dec-2020 17:09
Sulfate	**860**		**10.0**	**25.0**	**25.0**	**mg/L**	50	18-Dec-2020 21:13
SUBCONTRACT ANALYSIS - DHC/DHB		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	23-Dec-2020 17:43
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUBCA
Subcontract Analysis	See Attached		0	0		NA	1	16-Dec-2020 12:44

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 30-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
Sample ID: 35AWW19_120320
Collection Date: 03-Dec-2020 10:45

ANALYTICAL REPORT
WorkOrder:HS20120247
Lab ID:HS20120247-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	22-Dec-2020 13:05
SUBCONTRACT ANALYSIS - VOLATILE FATTY ACIDS		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	30-Dec-2020 15:38

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 30-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
Sample ID: 35AWW24_120320
Collection Date: 03-Dec-2020 11:40

ANALYTICAL REPORT
WorkOrder:HS20120247
Lab ID:HS20120247-06
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 14:23
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 14:23
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	ug/L	1	17-Dec-2020 14:23
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 14:23
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 14:23
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 14:23
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 14:23
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 14:23
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	17-Dec-2020 14:23
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	17-Dec-2020 14:23
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 14:23
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 14:23
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 14:23
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	17-Dec-2020 14:23
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 14:23
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	17-Dec-2020 14:23
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 14:23
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 14:23
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 14:23
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 14:23
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 14:23
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	17-Dec-2020 14:23
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 14:23
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	17-Dec-2020 14:23
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 14:23
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 14:23
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	17-Dec-2020 14:23
Acetone	1.0	U	0.40	1.0	2.0	ug/L	1	17-Dec-2020 14:23
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 14:23
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 14:23
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 14:23
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 14:23
Bromoform	0.50	U	0.40	0.50	1.0	ug/L	1	17-Dec-2020 14:23
Bromomethane	0.50	U	0.40	0.50	1.0	ug/L	1	17-Dec-2020 14:23
Carbon disulfide	1.0	U	0.60	1.0	2.0	ug/L	1	17-Dec-2020 14:23
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	ug/L	1	17-Dec-2020 14:23
Chlorobenzene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 14:23
Chloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 14:23
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 14:23

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 30-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
Sample ID: 35AWW24_120320
Collection Date: 03-Dec-2020 11:40

ANALYTICAL REPORT
WorkOrder:HS20120247
Lab ID:HS20120247-06
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 14:23
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 14:23
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	17-Dec-2020 14:23
Dibromochloromethane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 14:23
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 14:23
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 14:23
Ethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 14:23
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	17-Dec-2020 14:23
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 14:23
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	17-Dec-2020 14:23
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	17-Dec-2020 14:23
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 14:23
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 14:23
Naphthalene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 14:23
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 14:23
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 14:23
Styrene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 14:23
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 14:23
Tetrachloroethene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 14:23
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 14:23
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 14:23
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 14:23
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 14:23
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 14:23
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 14:23
Surr: 1,2-Dichloroethane-d4	*92.4*			**0**	*81-118*	*%REC*	*1*	*17-Dec-2020 14:23*
Surr: 4-Bromofluorobenzene	*94.3*			**0**	*85-114*	*%REC*	*1*	*17-Dec-2020 14:23*
Surr: Dibromofluoromethane	*90.4*			**0**	*80-119*	*%REC*	*1*	*17-Dec-2020 14:23*
Surr: Toluene-d8	*102*			**0**	*89-112*	*%REC*	*1*	*17-Dec-2020 14:23*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 30-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
Sample ID: LHSMW06_120320
Collection Date: 03-Dec-2020 12:30

ANALYTICAL REPORT
WorkOrder:HS20120247
Lab ID:HS20120247-07
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 20:21
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 20:21
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	ug/L	1	17-Dec-2020 20:21
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 20:21
1,1-Dichloroethane	**6.1**		**0.20**	**0.50**	**1.0**	**ug/L**	1	17-Dec-2020 20:21
1,1-Dichloroethene	**14**		**0.20**	**0.50**	**1.0**	**ug/L**	1	17-Dec-2020 20:21
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 20:21
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 20:21
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	17-Dec-2020 20:21
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	17-Dec-2020 20:21
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 20:21
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 20:21
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 20:21
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	17-Dec-2020 20:21
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 20:21
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	17-Dec-2020 20:21
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 20:21
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 20:21
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 20:21
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 20:21
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 20:21
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	17-Dec-2020 20:21
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 20:21
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	17-Dec-2020 20:21
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 20:21
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 20:21
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	17-Dec-2020 20:21
Acetone	1.0	U	0.40	1.0	2.0	ug/L	1	17-Dec-2020 20:21
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 20:21
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 20:21
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 20:21
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 20:21
Bromoform	0.50	U	0.40	0.50	1.0	ug/L	1	17-Dec-2020 20:21
Bromomethane	0.50	U	0.40	0.50	1.0	ug/L	1	17-Dec-2020 20:21
Carbon disulfide	1.0	U	0.60	1.0	2.0	ug/L	1	17-Dec-2020 20:21
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	ug/L	1	17-Dec-2020 20:21
Chlorobenzene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 20:21
Chloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 20:21
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 20:21

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 30-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
Sample ID: LHSMW06_120320
Collection Date: 03-Dec-2020 12:30

ANALYTICAL REPORT
WorkOrder:HS20120247
Lab ID:HS20120247-07
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 20:21
cis-1,2-Dichloroethene	**62**		**0.20**	**0.50**	**1.0**	**ug/L**	1	17-Dec-2020 20:21
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	17-Dec-2020 20:21
Dibromochloromethane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 20:21
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 20:21
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 20:21
Ethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 20:21
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	17-Dec-2020 20:21
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 20:21
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	17-Dec-2020 20:21
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	17-Dec-2020 20:21
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 20:21
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 20:21
Naphthalene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 20:21
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 20:21
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 20:21
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 20:21
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 20:21
Tetrachloroethene	**1.6**		**0.30**	**0.50**	**1.0**	**ug/L**	1	17-Dec-2020 20:21
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 20:21
trans-1,2-Dichloroethene	**1.3**		**0.20**	**0.50**	**1.0**	**ug/L**	1	17-Dec-2020 20:21
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 20:21
Trichloroethene	**14**		**0.20**	**0.50**	**1.0**	**ug/L**	1	17-Dec-2020 20:21
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 20:21
Vinyl chloride	**4.8**		**0.20**	**0.50**	**1.0**	**ug/L**	1	17-Dec-2020 20:21
Surr: 1,2-Dichloroethane-d4	*88.0*			**0**	*81-118*	*%REC*	*1*	*17-Dec-2020 20:21*
Surr: 4-Bromofluorobenzene	*94.4*			**0**	*85-114*	*%REC*	*1*	*17-Dec-2020 20:21*
Surr: Dibromofluoromethane	*88.4*			**0**	*80-119*	*%REC*	*1*	*17-Dec-2020 20:21*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*1*	*17-Dec-2020 20:21*
METALS BY ICPMS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 21-Dec-2020		Analyst: JHD
Arsenic	**0.000481**	J	**0.000400**	**0.00100**	**0.00500**	**mg/L**	1	24-Dec-2020 10:53

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 30-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
Sample ID: Trip Blank
Collection Date: 03-Dec-2020 00:00

ANALYTICAL REPORT
WorkOrder:HS20120247
Lab ID:HS20120247-08
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 15:05
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 15:05
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	ug/L	1	17-Dec-2020 15:05
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 15:05
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 15:05
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 15:05
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 15:05
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 15:05
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	17-Dec-2020 15:05
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	17-Dec-2020 15:05
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 15:05
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 15:05
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 15:05
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	17-Dec-2020 15:05
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 15:05
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	17-Dec-2020 15:05
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 15:05
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 15:05
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 15:05
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 15:05
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 15:05
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	17-Dec-2020 15:05
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 15:05
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	17-Dec-2020 15:05
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 15:05
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 15:05
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	17-Dec-2020 15:05
Acetone	1.0	U	0.40	1.0	2.0	ug/L	1	17-Dec-2020 15:05
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 15:05
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 15:05
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 15:05
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 15:05
Bromoform	0.50	U	0.40	0.50	1.0	ug/L	1	17-Dec-2020 15:05
Bromomethane	0.50	U	0.40	0.50	1.0	ug/L	1	17-Dec-2020 15:05
Carbon disulfide	1.0	U	0.60	1.0	2.0	ug/L	1	17-Dec-2020 15:05
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	ug/L	1	17-Dec-2020 15:05
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 15:05
Chloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 15:05
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 15:05

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 30-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
Sample ID: Trip Blank
Collection Date: 03-Dec-2020 00:00

ANALYTICAL REPORT
WorkOrder:HS20120247
Lab ID:HS20120247-08
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 15:05
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 15:05
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	17-Dec-2020 15:05
Dibromochloromethane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 15:05
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 15:05
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 15:05
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 15:05
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	17-Dec-2020 15:05
Isopropylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 15:05
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	17-Dec-2020 15:05
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	17-Dec-2020 15:05
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 15:05
n-Propylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 15:05
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 15:05
o-Xylene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 15:05
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 15:05
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 15:05
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 15:05
Tetrachloroethene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 15:05
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 15:05
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 15:05
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 15:05
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 15:05
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 15:05
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 15:05
Surr: 1,2-Dichloroethane-d4	*90.4*			**0**	*81-118*	*%REC*	*1*	*17-Dec-2020 15:05*
Surr: 4-Bromofluorobenzene	*94.7*			**0**	*85-114*	*%REC*	*1*	*17-Dec-2020 15:05*
Surr: Dibromofluoromethane	*90.0*			**0**	*80-119*	*%REC*	*1*	*17-Dec-2020 15:05*
Surr: Toluene-d8	*100*			**0**	*89-112*	*%REC*	*1*	*17-Dec-2020 15:05*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Weight / Prep Log

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
WorkOrder: HS20120247

Batch ID: 160930 **Start Date:** 21 Dec 2020 13:00 **End Date:** 21 Dec 2020 17:00
Method: WATER - SW3010A **Prep Code:** 3010A

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS20120247-07		10 (mL)	10 (mL)	1

ALS Houston, US Date: 30-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
WorkOrder: HS20120247

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: 160930 (0)	**Test Name :** METALS BY ICPMS BY SW6020A				**Matrix:** Groundwater	
HS20120247-07	LHSMW06_120320	03 Dec 2020 12:30		21 Dec 2020 17:00	24 Dec 2020 10:53	1
Batch ID: R374034 (0)	**Test Name :** ANIONS BY SW9056A				**Matrix:** Groundwater	
HS20120247-01	35AWW20_120320	03 Dec 2020 07:25			04 Dec 2020 16:15	1
HS20120247-02	LHSMW07_120320	03 Dec 2020 08:15			04 Dec 2020 16:33	2
HS20120247-04	35AWW23_120320	03 Dec 2020 09:55			04 Dec 2020 16:51	1
HS20120247-05	35AWW19_120320	03 Dec 2020 10:45			04 Dec 2020 17:09	1
Batch ID: R374732 (0)	**Test Name :** SUBCONTRACT ANALYSIS - RSK				**Matrix:** Groundwater	
HS20120247-01	35AWW20_120320	03 Dec 2020 07:25			16 Dec 2020 12:44	1
HS20120247-02	LHSMW07_120320	03 Dec 2020 08:15			16 Dec 2020 12:44	1
HS20120247-04	35AWW23_120320	03 Dec 2020 09:55			16 Dec 2020 12:44	1
HS20120247-05	35AWW19_120320	03 Dec 2020 10:45			16 Dec 2020 12:44	1
Batch ID: R374913 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Water	
HS20120247-08	Trip Blank	03 Dec 2020 00:00			17 Dec 2020 15:05	1
Batch ID: R374913 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Groundwater	
HS20120247-01	35AWW20_120320	03 Dec 2020 07:25			17 Dec 2020 18:36	25
HS20120247-01	35AWW20_120320	03 Dec 2020 07:25			17 Dec 2020 15:47	1
HS20120247-02	LHSMW07_120320	03 Dec 2020 08:15			17 Dec 2020 18:57	1
HS20120247-03	35AWW05_120320	03 Dec 2020 09:10			17 Dec 2020 19:18	1
HS20120247-04	35AWW23_120320	03 Dec 2020 09:55			17 Dec 2020 19:39	1
HS20120247-05	35AWW19_120320	03 Dec 2020 10:45			17 Dec 2020 20:00	1
HS20120247-06	35AWW24_120320	03 Dec 2020 11:40			17 Dec 2020 14:23	1
HS20120247-07	LHSMW06_120320	03 Dec 2020 12:30			17 Dec 2020 20:21	1
Batch ID: R375028 (0)	**Test Name :** ANIONS BY SW9056A				**Matrix:** Groundwater	
HS20120247-01	35AWW20_120320	03 Dec 2020 07:25			18 Dec 2020 19:25	50
HS20120247-02	LHSMW07_120320	03 Dec 2020 08:15			18 Dec 2020 19:43	100
HS20120247-04	35AWW23_120320	03 Dec 2020 09:55			18 Dec 2020 20:01	100
HS20120247-05	35AWW19_120320	03 Dec 2020 10:45			18 Dec 2020 21:13	50
Batch ID: R375125 (0)	**Test Name :** SUBCONTRACT ANALYSIS - TOC ANALYSIS				**Matrix:** Groundwater	
HS20120247-01	35AWW20_120320	03 Dec 2020 07:25			22 Dec 2020 13:05	1
HS20120247-02	LHSMW07_120320	03 Dec 2020 08:15			22 Dec 2020 13:05	1
HS20120247-04	35AWW23_120320	03 Dec 2020 09:55			22 Dec 2020 13:05	1
HS20120247-05	35AWW19_120320	03 Dec 2020 10:45			22 Dec 2020 13:05	1

ALS Houston, US Date: 30-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
WorkOrder: HS20120247

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R375279 (0)	**Test Name :** SUBCONTRACT ANALYSIS - DHC/DHB				**Matrix:** Groundwater	
HS20120247-01	35AWW20_120320	03 Dec 2020 07:25			23 Dec 2020 17:43	1
HS20120247-02	LHSMW07_120320	03 Dec 2020 08:15			23 Dec 2020 17:43	1
HS20120247-04	35AWW23_120320	03 Dec 2020 09:55			23 Dec 2020 17:43	1
HS20120247-05	35AWW19_120320	03 Dec 2020 10:45			23 Dec 2020 17:43	1
Batch ID: R375648 (0)	**Test Name :** SUBCONTRACT ANALYSIS - VOLATILE FATTY ACIDS				**Matrix:** Groundwater	
HS20120247-01	35AWW20_120320	03 Dec 2020 07:25			30 Dec 2020 15:38	1
HS20120247-02	LHSMW07_120320	03 Dec 2020 08:15			30 Dec 2020 15:38	1
HS20120247-04	35AWW23_120320	03 Dec 2020 09:55			30 Dec 2020 15:38	1
HS20120247-05	35AWW19_120320	03 Dec 2020 10:45			30 Dec 2020 15:38	1

ALS Houston, US Date: 30-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
WorkOrder: HS20120247

QC BATCH REPORT

Batch ID: 160930 (0) **Instrument: ICPMS05** **Method: METALS BY ICPMS BY SW6020A**

MBLK Sample ID: **MBLK-160930** Units: **mg/L** Analysis Date: **24-Dec-2020 10:49**
Client ID: Run ID: **ICPMS05_375348** SeqNo: **5897738** PrepDate: **21-Dec-2020** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.00100	0.00500								U

LCS Sample ID: **LCS-160930** Units: **mg/L** Analysis Date: **24-Dec-2020 10:51**
Client ID: Run ID: **ICPMS05_375348** SeqNo: **5897739** PrepDate: **21-Dec-2020** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.05162	0.00500	0.05	0	103	84 - 116				

MS Sample ID: **HS20120486-08MS** Units: **mg/L** Analysis Date: **24-Dec-2020 10:59**
Client ID: Run ID: **ICPMS05_375348** SeqNo: **5897743** PrepDate: **21-Dec-2020** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.05393	0.00500	0.05	0.000759	106	84 - 116				

MSD Sample ID: **HS20120486-08MSD** Units: **mg/L** Analysis Date: **24-Dec-2020 11:15**
Client ID: Run ID: **ICPMS05_375348** SeqNo: **5897749** PrepDate: **21-Dec-2020** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.05396	0.00500	0.05	0.000759	106	84 - 116	0.05393	0.0445	20	

PDS Sample ID: **HS20120486-08PDS** Units: **mg/L** Analysis Date: **24-Dec-2020 11:03**
Client ID: Run ID: **ICPMS05_375348** SeqNo: **5897745** PrepDate: **21-Dec-2020** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.1166	0.00500	0.1	0.000759	116	80 - 120				

SD Sample ID: **HS20120486-08SD** Units: **mg/L** Analysis Date: **24-Dec-2020 16:12**
Client ID: Run ID: **ICPMS05_375348** SeqNo: **5898069** PrepDate: **21-Dec-2020** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Arsenic	0.00500	0.0250					0.000759	0	10	U

The following samples were analyzed in this batch: HS20120247-07

ALS Houston, US Date: 30-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
WorkOrder: HS20120247

QC BATCH REPORT

Batch ID: R374913 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MBLK Sample ID: **VBLKW-201217** Units: **ug/L** Analysis Date: **17-Dec-2020 14:02**
Client ID: Run ID: **VOA6_374913** SeqNo: **5887320** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	0.50	1.0								U
1,1,1-Trichloroethane	0.50	1.0								U
1,1,2,2-Tetrachloroethane	0.50	1.0								U
1,1,2-Trichloroethane	0.50	1.0								U
1,1-Dichloroethane	0.50	1.0								U
1,1-Dichloroethene	0.50	1.0								U
1,1-Dichloropropene	0.50	1.0								U
1,2,3-Trichlorobenzene	1.0	1.0								U
1,2,3-Trichloropropane	1.0	1.0								U
1,2,4-Trichlorobenzene	1.0	1.0								U
1,2,4-Trimethylbenzene	0.50	1.0								U
1,2-Dibromo-3-chloropropane	0.50	1.0								U
1,2-Dibromoethane	0.50	1.0								U
1,2-Dichlorobenzene	1.0	1.0								U
1,2-Dichloroethane	0.50	1.0								U
1,2-Dichloropropane	0.50	1.0								U
1,3,5-Trimethylbenzene	0.50	1.0								U
1,3-Dichlorobenzene	1.0	1.0								U
1,3-Dichloropropane	1.0	1.0								U
1,4-Dichlorobenzene	1.0	1.0								U
2,2-Dichloropropane	0.50	1.0								U
2-Butanone	1.0	2.0								U
2-Chlorotoluene	1.0	1.0								U
2-Hexanone	2.0	2.0								U
4-Chlorotoluene	1.0	1.0								U
4-Isopropyltoluene	1.0	1.0								U
4-Methyl-2-pentanone	2.0	2.0								U
Acetone	1.0	2.0								U
Benzene	0.50	1.0								U
Bromobenzene	1.0	1.0								U
Bromochloromethane	0.50	1.0								U
Bromodichloromethane	0.50	1.0								U
Bromoform	0.50	1.0								U
Bromomethane	0.50	1.0								U

ALS Houston, US Date: 30-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
WorkOrder: HS20120247

QC BATCH REPORT

Batch ID: R374913 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MBLK Sample ID: **VBLKW-201217** Units: **ug/L** Analysis Date: **17-Dec-2020 14:02**
Client ID: Run ID: **VOA6_374913** SeqNo: **5887320** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	1.0	2.0								U
Carbon tetrachloride	0.50	1.0								U
Chlorobenzene	0.50	1.0								U
Chloroethane	0.50	1.0								U
Chloroform	0.50	1.0								U
Chloromethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
cis-1,3-Dichloropropene	0.50	1.0								U
Dibromochloromethane	0.50	1.0								U
Dibromomethane	0.50	1.0								U
Dichlorodifluoromethane	0.50	1.0								U
Ethylbenzene	1.0	1.0								U
Hexachlorobutadiene	1.0	1.0								U
Isopropylbenzene	0.50	1.0								U
m,p-Xylene	1.0	2.0								U
Methylene chloride	1.0	2.0								U
Naphthalene	0.50	1.0								U
n-Butylbenzene	1.0	1.0								U
n-Propylbenzene	1.0	1.0								U
o-Xylene	1.0	1.0								U
sec-Butylbenzene	0.50	1.0								U
Styrene	1.0	1.0								U
tert-Butylbenzene	0.50	1.0								U
Tetrachloroethene	0.50	1.0								U
Toluene	0.50	1.0								U
trans-1,2-Dichloroethene	0.50	1.0								U
trans-1,3-Dichloropropene	0.50	1.0								U
Trichloroethene	0.50	1.0								U
Trichlorofluoromethane	0.50	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*44*	*1.0*	*50*	*0*	*88.0*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*47.51*	*1.0*	*50*	*0*	*95.0*	*85 - 114*				
Surr: Dibromofluoromethane	*43.93*	*1.0*	*50*	*0*	*87.9*	*80 - 119*				
Surr: Toluene-d8	*50.67*	*1.0*	*50*	*0*	*101*	*89 - 112*				

ALS Houston, US Date: 30-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
WorkOrder: HS20120247

QC BATCH REPORT

Batch ID: R374913 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

LCS Sample ID: **VLCSW-201217** Units: **ug/L** Analysis Date: **17-Dec-2020 13:20**
Client ID: Run ID: **VOA6_374913** SeqNo: **5887319** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	22.79	1.0	20	0	114	78 - 124				
1,1,1-Trichloroethane	20.92	1.0	20	0	105	74 - 131				
1,1,2,2-Tetrachloroethane	20.17	1.0	20	0	101	71 - 121				
1,1,2-Trichloroethane	21.55	1.0	20	0	108	80 - 119				
1,1-Dichloroethane	21.08	1.0	20	0	105	77 - 125				
1,1-Dichloroethene	18.38	1.0	20	0	91.9	71 - 131				
1,1-Dichloropropene	20.01	1.0	20	0	100	78 - 125				
1,2,3-Trichlorobenzene	26.48	1.0	20	0	132	69 - 129				S
1,2,3-Trichloropropane	20.9	1.0	20	0	104	73 - 122				
1,2,4-Trichlorobenzene	21.82	1.0	20	0	109	69 - 130				
1,2,4-Trimethylbenzene	20.18	1.0	20	0	101	76 - 124				
1,2-Dibromo-3-chloropropane	22.94	1.0	20	0	115	62 - 128				
1,2-Dibromoethane	22.33	1.0	20	0	112	77 - 121				
1,2-Dichlorobenzene	19.88	1.0	20	0	99.4	80 - 119				
1,2-Dichloroethane	22.4	1.0	20	0	112	73 - 128				
1,2-Dichloropropane	22.75	1.0	20	0	114	78 - 122				
1,3,5-Trimethylbenzene	19.23	1.0	20	0	96.2	75 - 124				
1,3-Dichlorobenzene	20.14	1.0	20	0	101	80 - 119				
1,3-Dichloropropane	22.79	1.0	20	0	114	80 - 119				
1,4-Dichlorobenzene	19.76	1.0	20	0	98.8	79 - 118				
2,2-Dichloropropane	21.98	1.0	20	0	110	60 - 139				
2-Butanone	47.85	2.0	40	0	120	56 - 143				
2-Chlorotoluene	20.86	1.0	20	0	104	79 - 122				
2-Hexanone	43.39	2.0	40	0	108	57 - 139				
4-Chlorotoluene	20.41	1.0	20	0	102	78 - 122				
4-Isopropyltoluene	17.79	1.0	20	0	88.9	77 - 127				
4-Methyl-2-pentanone	40.45	2.0	40	0	101	67 - 130				
Acetone	50.48	2.0	40	0	126	39 - 160				
Benzene	21.88	1.0	20	0	109	79 - 120				
Bromobenzene	20.83	1.0	20	0	104	80 - 120				
Bromochloromethane	22.82	1.0	20	0	114	78 - 123				
Bromodichloromethane	23.23	1.0	20	0	116	79 - 125				
Bromoform	22.45	1.0	20	0	112	66 - 130				
Bromomethane	26.18	1.0	20	0	131	53 - 141				

ALS Houston, US Date: 30-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
WorkOrder: HS20120247

QC BATCH REPORT

Batch ID: R374913 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

LCS Sample ID: **VLCSW-201217** Units: **ug/L** Analysis Date: **17-Dec-2020 13:20**
Client ID: Run ID: **VOA6_374913** SeqNo: **5887319** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Carbon disulfide	43.38	2.0	40	0	108	64 - 133				
Carbon tetrachloride	21.19	1.0	20	0	106	72 - 136				
Chlorobenzene	21.12	1.0	20	0	106	82 - 118				
Chloroethane	20.58	1.0	20	0	103	60 - 138				
Chloroform	21.85	1.0	20	0	109	79 - 124				
Chloromethane	17.73	1.0	20	0	88.6	50 - 139				
cis-1,2-Dichloroethene	22.48	1.0	20	0	112	78 - 123				
cis-1,3-Dichloropropene	22.83	1.0	20	0	114	75 - 124				
Dibromochloromethane	22.02	1.0	20	0	110	74 - 126				
Dibromomethane	23.26	1.0	20	0	116	79 - 123				
Dichlorodifluoromethane	17.23	1.0	20	0	86.2	32 - 152				
Ethylbenzene	21.38	1.0	20	0	107	79 - 121				
Hexachlorobutadiene	20.11	1.0	20	0	101	66 - 134				
Isopropylbenzene	19.78	1.0	20	0	98.9	72 - 131				
m,p-Xylene	41.41	2.0	40	0	104	80 - 121				
Methylene chloride	21.66	2.0	20	0	108	74 - 124				
Naphthalene	24.44	1.0	20	0	122	61 - 128				
n-Butylbenzene	18.62	1.0	20	0	93.1	75 - 128				
n-Propylbenzene	19.49	1.0	20	0	97.5	76 - 126				
o-Xylene	21.18	1.0	20	0	106	78 - 122				
sec-Butylbenzene	17.8	1.0	20	0	89.0	77 - 126				
Styrene	21.51	1.0	20	0	108	78 - 123				
tert-Butylbenzene	17.76	1.0	20	0	88.8	78 - 124				
Tetrachloroethene	19.47	1.0	20	0	97.4	74 - 129				
Toluene	21.6	1.0	20	0	108	80 - 121				
trans-1,2-Dichloroethene	22.25	1.0	20	0	111	75 - 124				
trans-1,3-Dichloropropene	23.81	1.0	20	0	119	73 - 127				
Trichloroethene	21.05	1.0	20	0	105	79 - 123				
Trichlorofluoromethane	17.81	1.0	20	0	89.1	65 - 141				
Vinyl chloride	17.93	1.0	20	0	89.7	58 - 137				
Surr: 1,2-Dichloroethane-d4	*54.7*	*1.0*	*50*	*0*	*109*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*52.81*	*1.0*	*50*	*0*	*106*	*85 - 114*				
Surr: Dibromofluoromethane	*51.83*	*1.0*	*50*	*0*	*104*	*80 - 119*				
Surr: Toluene-d8	*49.75*	*1.0*	*50*	*0*	*99.5*	*89 - 112*				

ALS Houston, US Date: 30-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
WorkOrder: HS20120247

QC BATCH REPORT

Batch ID: R374913 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MS Sample ID: **HS20120479-03MS** Units: **ug/L** Analysis Date: **17-Dec-2020 17:33**
Client ID: Run ID: **VOA6_374913** SeqNo: **5887329** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	18.1	1.0	20	0	90.5	78 - 124				
1,1,1-Trichloroethane	17.28	1.0	20	0	86.4	74 - 131				
1,1,2,2-Tetrachloroethane	18.29	1.0	20	0	91.4	71 - 121				
1,1,2-Trichloroethane	18.39	1.0	20	0	92.0	80 - 119				
1,1-Dichloroethane	17.56	1.0	20	0	87.8	77 - 125				
1,1-Dichloroethene	15.58	1.0	20	0	77.9	71 - 131				
1,1-Dichloropropene	18.39	1.0	20	0	91.9	78 - 125				
1,2,3-Trichlorobenzene	22.79	1.0	20	0	114	69 - 129				
1,2,3-Trichloropropane	18.29	1.0	20	0	91.4	73 - 122				
1,2,4-Trichlorobenzene	21.24	1.0	20	0	106	69 - 130				
1,2,4-Trimethylbenzene	19.68	1.0	20	0	98.4	76 - 124				
1,2-Dibromo-3-chloropropane	19.53	1.0	20	0	97.6	62 - 128				
1,2-Dibromoethane	18.18	1.0	20	0	90.9	77 - 121				
1,2-Dichlorobenzene	18.88	1.0	20	0	94.4	80 - 119				
1,2-Dichloroethane	18	1.0	20	0	90.0	73 - 128				
1,2-Dichloropropane	18.68	1.0	20	0	93.4	78 - 122				
1,3,5-Trimethylbenzene	19.17	1.0	20	0	95.9	75 - 124				
1,3-Dichlorobenzene	18.98	1.0	20	0	94.9	80 - 119				
1,3-Dichloropropane	18.63	1.0	20	0	93.2	80 - 119				
1,4-Dichlorobenzene	19.44	1.0	20	0	97.2	79 - 118				
2,2-Dichloropropane	17.25	1.0	20	0	86.3	60 - 139				
2-Butanone	32.48	2.0	40	0	81.2	56 - 143				
2-Chlorotoluene	19.6	1.0	20	0	98.0	79 - 122				
2-Hexanone	33.31	2.0	40	0	83.3	57 - 139				
4-Chlorotoluene	19.51	1.0	20	0	97.5	78 - 122				
4-Isopropyltoluene	19.38	1.0	20	0	96.9	77 - 127				
4-Methyl-2-pentanone	35.08	2.0	40	0	87.7	67 - 130				
Acetone	24.02	2.0	40	0	60.1	39 - 160				
Benzene	18.05	1.0	20	0	90.2	79 - 120				
Bromobenzene	18.65	1.0	20	0	93.2	80 - 120				
Bromochloromethane	16.4	1.0	20	0	82.0	78 - 123				
Bromodichloromethane	18.78	1.0	20	0	93.9	79 - 125				
Bromoform	18.74	1.0	20	0	93.7	66 - 130				
Bromomethane	20.62	1.0	20	0	103	53 - 141				

ALS Houston, US Date: 30-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
WorkOrder: HS20120247

QC BATCH REPORT

Batch ID: R374913 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MS Sample ID: **HS20120479-03MS** Units: **ug/L** Analysis Date: **17-Dec-2020 17:33**
Client ID: Run ID: **VOA6_374913** SeqNo: **5887329** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Carbon disulfide	35.27	2.0	40	0	88.2	64 - 133				
Carbon tetrachloride	20.32	1.0	20	0	102	72 - 136				
Chlorobenzene	18.48	1.0	20	0	92.4	82 - 118				
Chloroethane	20.71	1.0	20	0	104	60 - 138				
Chloroform	17.41	1.0	20	0	87.0	79 - 124				
Chloromethane	14.52	1.0	20	0	72.6	50 - 139				
cis-1,2-Dichloroethene	17.7	1.0	20	0	88.5	78 - 123				
cis-1,3-Dichloropropene	18.33	1.0	20	0	91.6	75 - 124				
Dibromochloromethane	18.27	1.0	20	0	91.4	74 - 126				
Dibromomethane	18.46	1.0	20	0	92.3	79 - 123				
Dichlorodifluoromethane	15.03	1.0	20	0	75.1	32 - 152				
Ethylbenzene	19.68	1.0	20	0	98.4	79 - 121				
Hexachlorobutadiene	19.91	1.0	20	0	99.5	66 - 134				
Isopropylbenzene	19.31	1.0	20	0	96.6	72 - 131				
m,p-Xylene	38.27	2.0	40	0	95.7	80 - 121				
Methylene chloride	17.04	2.0	20	0	85.2	74 - 124				
Naphthalene	21.46	1.0	20	0	107	61 - 128				
n-Butylbenzene	20.48	1.0	20	0	102	75 - 128				
n-Propylbenzene	19.44	1.0	20	0	97.2	76 - 126				
o-Xylene	18.99	1.0	20	0	94.9	78 - 122				
sec-Butylbenzene	19.72	1.0	20	0	98.6	77 - 126				
Styrene	18.4	1.0	20	0	92.0	78 - 123				
tert-Butylbenzene	19.55	1.0	20	0	97.8	78 - 124				
Tetrachloroethene	19.54	1.0	20	0	97.7	74 - 129				
Toluene	18.65	1.0	20	0	93.3	80 - 121				
trans-1,2-Dichloroethene	17.64	1.0	20	0	88.2	75 - 124				
trans-1,3-Dichloropropene	17.95	1.0	20	0	89.7	73 - 127				
Trichloroethene	17.8	1.0	20	0	89.0	79 - 123				
Trichlorofluoromethane	15.36	1.0	20	0	76.8	65 - 141				
Vinyl chloride	16.23	1.0	20	0	81.1	58 - 137				
Surr: 1,2-Dichloroethane-d4	*45.22*	*1.0*	*50*	*0*	*90.4*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*50.25*	*1.0*	*50*	*0*	*100*	*85 - 114*				
Surr: Dibromofluoromethane	*44.98*	*1.0*	*50*	*0*	*90.0*	*80 - 119*				
Surr: Toluene-d8	*51.18*	*1.0*	*50*	*0*	*102*	*89 - 112*				

ALS Houston, US Date: 30-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
WorkOrder: HS20120247

QC BATCH REPORT

Batch ID: R374913 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS20120247-06MS** Units: **ug/L** Analysis Date: **17-Dec-2020 16:50**
Client ID: **35AWW24_120320** Run ID: **VOA6_374913** SeqNo: **5887327** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	19.12	1.0	20	0	95.6	78 - 124				
1,1,1-Trichloroethane	18.12	1.0	20	0	90.6	74 - 131				
1,1,2,2-Tetrachloroethane	17.34	1.0	20	0	86.7	71 - 121				
1,1,2-Trichloroethane	18.58	1.0	20	0	92.9	80 - 119				
1,1-Dichloroethane	17.77	1.0	20	0	88.9	77 - 125				
1,1-Dichloroethene	16.77	1.0	20	0	83.9	71 - 131				
1,1-Dichloropropene	19.58	1.0	20	0	97.9	78 - 125				
1,2,3-Trichlorobenzene	16.23	1.0	20	0	81.2	69 - 129				
1,2,3-Trichloropropane	17.15	1.0	20	0	85.8	73 - 122				
1,2,4-Trichlorobenzene	17.46	1.0	20	0	87.3	69 - 130				
1,2,4-Trimethylbenzene	18.82	1.0	20	0	94.1	76 - 124				
1,2-Dibromo-3-chloropropane	16.4	1.0	20	0	82.0	62 - 128				
1,2-Dibromoethane	18.5	1.0	20	0	92.5	77 - 121				
1,2-Dichlorobenzene	17.83	1.0	20	0	89.1	80 - 119				
1,2-Dichloroethane	18.78	1.0	20	0	93.9	73 - 128				
1,2-Dichloropropane	18.87	1.0	20	0	94.4	78 - 122				
1,3,5-Trimethylbenzene	18.37	1.0	20	0	91.8	75 - 124				
1,3-Dichlorobenzene	18.09	1.0	20	0	90.5	80 - 119				
1,3-Dichloropropane	18.92	1.0	20	0	94.6	80 - 119				
1,4-Dichlorobenzene	18.43	1.0	20	0	92.1	79 - 118				
2,2-Dichloropropane	17.98	1.0	20	0	89.9	60 - 139				
2-Butanone	32.47	2.0	40	0	81.2	56 - 143				
2-Chlorotoluene	19.01	1.0	20	0	95.0	79 - 122				
2-Hexanone	32.77	2.0	40	0	81.9	57 - 139				
4-Chlorotoluene	18.33	1.0	20	0	91.6	78 - 122				
4-Isopropyltoluene	18.26	1.0	20	0	91.3	77 - 127				
4-Methyl-2-pentanone	34.06	2.0	40	0	85.2	67 - 130				
Acetone	27.99	2.0	40	0	70.0	39 - 160				
Benzene	19.01	1.0	20	0	95.0	79 - 120				
Bromobenzene	18.06	1.0	20	0	90.3	80 - 120				
Bromochloromethane	17.55	1.0	20	0	87.8	78 - 123				
Bromodichloromethane	18.97	1.0	20	0	94.8	79 - 125				
Bromoform	18.77	1.0	20	0	93.9	66 - 130				
Bromomethane	21.79	1.0	20	0	109	53 - 141				

ALS Houston, US Date: 30-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
WorkOrder: HS20120247

QC BATCH REPORT

Batch ID: R374913 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MS Sample ID: **HS20120247-06MS** Units: **ug/L** Analysis Date: **17-Dec-2020 16:50**
Client ID: **35AWW24_120320** Run ID: **VOA6_374913** SeqNo: **5887327** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	36.56	2.0	40	0	91.4	64 - 133				
Carbon tetrachloride	21.1	1.0	20	0	106	72 - 136				
Chlorobenzene	19.45	1.0	20	0	97.3	82 - 118				
Chloroethane	18.31	1.0	20	0	91.6	60 - 138				
Chloroform	17.93	1.0	20	0	89.6	79 - 124				
Chloromethane	14.14	1.0	20	0	70.7	50 - 139				
cis-1,2-Dichloroethene	18.21	1.0	20	0	91.1	78 - 123				
cis-1,3-Dichloropropene	18.49	1.0	20	0	92.5	75 - 124				
Dibromochloromethane	18.64	1.0	20	0	93.2	74 - 126				
Dibromomethane	18.46	1.0	20	0	92.3	79 - 123				
Dichlorodifluoromethane	15.63	1.0	20	0	78.2	32 - 152				
Ethylbenzene	19.57	1.0	20	0	97.8	79 - 121				
Hexachlorobutadiene	16.89	1.0	20	0	84.4	66 - 134				
Isopropylbenzene	19.77	1.0	20	0	98.8	72 - 131				
m,p-Xylene	38.57	2.0	40	0	96.4	80 - 121				
Methylene chloride	17.03	2.0	20	0	85.1	74 - 124				
Naphthalene	14.76	1.0	20	0	73.8	61 - 128				
n-Butylbenzene	18.86	1.0	20	0	94.3	75 - 128				
n-Propylbenzene	18.96	1.0	20	0	94.8	76 - 126				
o-Xylene	19.21	1.0	20	0	96.0	78 - 122				
sec-Butylbenzene	18.5	1.0	20	0	92.5	77 - 126				
Styrene	19.07	1.0	20	0	95.3	78 - 123				
tert-Butylbenzene	18.97	1.0	20	0	94.8	78 - 124				
Tetrachloroethene	21.73	1.0	20	0	109	74 - 129				
Toluene	19.09	1.0	20	0	95.5	80 - 121				
trans-1,2-Dichloroethene	18	1.0	20	0	90.0	75 - 124				
trans-1,3-Dichloropropene	18.76	1.0	20	0	93.8	73 - 127				
Trichloroethene	18.83	1.0	20	0	94.2	79 - 123				
Trichlorofluoromethane	16.72	1.0	20	0	83.6	65 - 141				
Vinyl chloride	16.8	1.0	20	0	84.0	58 - 137				
Surr: 1,2-Dichloroethane-d4	*44.68*	*1.0*	*50*	*0*	*89.4*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*52.87*	*1.0*	*50*	*0*	*106*	*85 - 114*				
Surr: Dibromofluoromethane	*46.94*	*1.0*	*50*	*0*	*93.9*	*80 - 119*				
Surr: Toluene-d8	*50.86*	*1.0*	*50*	*0*	*102*	*89 - 112*				

ALS Houston, US Date: 30-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
WorkOrder: HS20120247

QC BATCH REPORT

Batch ID: R374913 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MSD Sample ID: **HS20120479-03MSD** Units: **ug/L** Analysis Date: **17-Dec-2020 17:54**
Client ID: Run ID: **VOA6_374913** SeqNo: **5887330** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	17.93	1.0	20	0	89.6	78 - 124	18.1	0.974	20	
1,1,1-Trichloroethane	17.43	1.0	20	0	87.2	74 - 131	17.28	0.866	20	
1,1,2,2-Tetrachloroethane	16.32	1.0	20	0	81.6	71 - 121	18.29	11.4	20	
1,1,2-Trichloroethane	18.14	1.0	20	0	90.7	80 - 119	18.39	1.4	20	
1,1-Dichloroethane	16.27	1.0	20	0	81.4	77 - 125	17.56	7.61	20	
1,1-Dichloroethene	14.85	1.0	20	0	74.2	71 - 131	15.58	4.84	20	
1,1-Dichloropropene	18.24	1.0	20	0	91.2	78 - 125	18.39	0.797	20	
1,2,3-Trichlorobenzene	20.79	1.0	20	0	104	69 - 129	22.79	9.21	20	
1,2,3-Trichloropropane	16.9	1.0	20	0	84.5	73 - 122	18.29	7.86	20	
1,2,4-Trichlorobenzene	19.08	1.0	20	0	95.4	69 - 130	21.24	10.7	20	
1,2,4-Trimethylbenzene	17.58	1.0	20	0	87.9	76 - 124	19.68	11.3	20	
1,2-Dibromo-3-chloropropane	16.15	1.0	20	0	80.8	62 - 128	19.53	18.9	20	
1,2-Dibromoethane	17.15	1.0	20	0	85.7	77 - 121	18.18	5.84	20	
1,2-Dichlorobenzene	17.24	1.0	20	0	86.2	80 - 119	18.88	9.05	20	
1,2-Dichloroethane	18	1.0	20	0	90.0	73 - 128	18	0.00849	20	
1,2-Dichloropropane	18.13	1.0	20	0	90.7	78 - 122	18.68	2.98	20	
1,3,5-Trimethylbenzene	17.25	1.0	20	0	86.2	75 - 124	19.17	10.6	20	
1,3-Dichlorobenzene	16.97	1.0	20	0	84.8	80 - 119	18.98	11.2	20	
1,3-Dichloropropane	17.75	1.0	20	0	88.7	80 - 119	18.63	4.85	20	
1,4-Dichlorobenzene	17.26	1.0	20	0	86.3	79 - 118	19.44	11.9	20	
2,2-Dichloropropane	16.72	1.0	20	0	83.6	60 - 139	17.25	3.12	20	
2-Butanone	30.9	2.0	40	0	77.2	56 - 143	32.48	5.01	20	
2-Chlorotoluene	17.81	1.0	20	0	89.1	79 - 122	19.6	9.55	20	
2-Hexanone	32.91	2.0	40	0	82.3	57 - 139	33.31	1.2	20	
4-Chlorotoluene	17.51	1.0	20	0	87.5	78 - 122	19.51	10.8	20	
4-Isopropyltoluene	17.65	1.0	20	0	88.2	77 - 127	19.38	9.39	20	
4-Methyl-2-pentanone	33.86	2.0	40	0	84.7	67 - 130	35.08	3.53	20	
Acetone	24.68	2.0	40	0	61.7	39 - 160	24.02	2.71	20	
Benzene	17.85	1.0	20	0	89.2	79 - 120	18.05	1.11	20	
Bromobenzene	17.11	1.0	20	0	85.5	80 - 120	18.65	8.63	20	
Bromochloromethane	16.33	1.0	20	0	81.6	78 - 123	16.4	0.423	20	
Bromodichloromethane	18.45	1.0	20	0	92.2	79 - 125	18.78	1.77	20	
Bromoform	18.17	1.0	20	0	90.9	66 - 130	18.74	3.07	20	
Bromomethane	18.97	1.0	20	0	94.9	53 - 141	20.62	8.34	20	

ALS Houston, US Date: 30-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
WorkOrder: HS20120247

QC BATCH REPORT

Batch ID: R374913 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS20120479-03MSD** Units: **ug/L** Analysis Date: **17-Dec-2020 17:54**
Client ID: Run ID: **VOA6_374913** SeqNo: **5887330** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Carbon disulfide	33.76	2.0	40	0	84.4	64 - 133	35.27	4.37	20	
Carbon tetrachloride	20.03	1.0	20	0	100	72 - 136	20.32	1.43	20	
Chlorobenzene	17.52	1.0	20	0	87.6	82 - 118	18.48	5.38	20	
Chloroethane	18.07	1.0	20	0	90.3	60 - 138	20.71	13.6	20	
Chloroform	16.55	1.0	20	0	82.8	79 - 124	17.41	5.03	20	
Chloromethane	14.01	1.0	20	0	70.1	50 - 139	14.52	3.55	20	
cis-1,2-Dichloroethene	16.79	1.0	20	0	84.0	78 - 123	17.7	5.24	20	
cis-1,3-Dichloropropene	17.63	1.0	20	0	88.2	75 - 124	18.33	3.87	20	
Dibromochloromethane	17.64	1.0	20	0	88.2	74 - 126	18.27	3.56	20	
Dibromomethane	18.41	1.0	20	0	92.1	79 - 123	18.46	0.233	20	
Dichlorodifluoromethane	14.49	1.0	20	0	72.5	32 - 152	15.03	3.64	20	
Ethylbenzene	18.73	1.0	20	0	93.6	79 - 121	19.68	4.95	20	
Hexachlorobutadiene	18.82	1.0	20	0	94.1	66 - 134	19.91	5.64	20	
Isopropylbenzene	18.2	1.0	20	0	91.0	72 - 131	19.31	5.95	20	
m,p-Xylene	36.2	2.0	40	0	90.5	80 - 121	38.27	5.55	20	
Methylene chloride	16	2.0	20	0	80.0	74 - 124	17.04	6.35	20	
Naphthalene	19.1	1.0	20	0	95.5	61 - 128	21.46	11.6	20	
n-Butylbenzene	18.76	1.0	20	0	93.8	75 - 128	20.48	8.78	20	
n-Propylbenzene	18.18	1.0	20	0	90.9	76 - 126	19.44	6.73	20	
o-Xylene	17.61	1.0	20	0	88.0	78 - 122	18.99	7.56	20	
sec-Butylbenzene	18.02	1.0	20	0	90.1	77 - 126	19.72	9	20	
Styrene	18.32	1.0	20	0	91.6	78 - 123	18.4	0.463	20	
tert-Butylbenzene	17.8	1.0	20	0	89.0	78 - 124	19.55	9.38	20	
Tetrachloroethene	18.94	1.0	20	0	94.7	74 - 129	19.54	3.12	20	
Toluene	17.92	1.0	20	0	89.6	80 - 121	18.65	4.02	20	
trans-1,2-Dichloroethene	16.83	1.0	20	0	84.1	75 - 124	17.64	4.71	20	
trans-1,3-Dichloropropene	17.82	1.0	20	0	89.1	73 - 127	17.95	0.721	20	
Trichloroethene	17.53	1.0	20	0	87.7	79 - 123	17.8	1.52	20	
Trichlorofluoromethane	15.28	1.0	20	0	76.4	65 - 141	15.36	0.519	20	
Vinyl chloride	15.66	1.0	20	0	78.3	58 - 137	16.23	3.58	20	
Surr: 1,2-Dichloroethane-d4	*45.19*	*1.0*	*50*	*0*	*90.4*	*81 - 118*	*45.22*	*0.0792*	*20*	
Surr: 4-Bromofluorobenzene	*51.05*	*1.0*	*50*	*0*	*102*	*85 - 114*	*50.25*	*1.59*	*20*	
Surr: Dibromofluoromethane	*44.39*	*1.0*	*50*	*0*	*88.8*	*80 - 119*	*44.98*	*1.32*	*20*	
Surr: Toluene-d8	*50.05*	*1.0*	*50*	*0*	*100*	*89 - 112*	*51.18*	*2.25*	*20*	

ALS Houston, US Date: 30-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
WorkOrder: HS20120247

QC BATCH REPORT

Batch ID: R374913 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS20120247-06MSD** Units: **ug/L** Analysis Date: **17-Dec-2020 17:12**
Client ID: **35AWW24_120320** Run ID: **VOA6_374913** SeqNo: **5887328** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	18.14	1.0	20	0	90.7	78 - 124	19.12	5.27	20	
1,1,1-Trichloroethane	18.1	1.0	20	0	90.5	74 - 131	18.12	0.149	20	
1,1,2,2-Tetrachloroethane	17.23	1.0	20	0	86.2	71 - 121	17.34	0.653	20	
1,1,2-Trichloroethane	17.84	1.0	20	0	89.2	80 - 119	18.58	4.06	20	
1,1-Dichloroethane	16.78	1.0	20	0	83.9	77 - 125	17.77	5.76	20	
1,1-Dichloroethene	15.24	1.0	20	0	76.2	71 - 131	16.77	9.57	20	
1,1-Dichloropropene	18.65	1.0	20	0	93.3	78 - 125	19.58	4.88	20	
1,2,3-Trichlorobenzene	21.4	1.0	20	0	107	69 - 129	16.23	27.4	20	R
1,2,3-Trichloropropane	16.87	1.0	20	0	84.3	73 - 122	17.15	1.67	20	
1,2,4-Trichlorobenzene	19.52	1.0	20	0	97.6	69 - 130	17.46	11.2	20	
1,2,4-Trimethylbenzene	18.65	1.0	20	0	93.3	76 - 124	18.82	0.906	20	
1,2-Dibromo-3-chloropropane	17.29	1.0	20	0	86.5	62 - 128	16.4	5.29	20	
1,2-Dibromoethane	17.85	1.0	20	0	89.3	77 - 121	18.5	3.54	20	
1,2-Dichlorobenzene	17.76	1.0	20	0	88.8	80 - 119	17.83	0.357	20	
1,2-Dichloroethane	18.26	1.0	20	0	91.3	73 - 128	18.78	2.82	20	
1,2-Dichloropropane	18.02	1.0	20	0	90.1	78 - 122	18.87	4.62	20	
1,3,5-Trimethylbenzene	18.08	1.0	20	0	90.4	75 - 124	18.37	1.57	20	
1,3-Dichlorobenzene	17.87	1.0	20	0	89.4	80 - 119	18.09	1.24	20	
1,3-Dichloropropane	18.21	1.0	20	0	91.0	80 - 119	18.92	3.81	20	
1,4-Dichlorobenzene	18.32	1.0	20	0	91.6	79 - 118	18.43	0.569	20	
2,2-Dichloropropane	17.87	1.0	20	0	89.4	60 - 139	17.98	0.604	20	
2-Butanone	33.93	2.0	40	0	84.8	56 - 143	32.47	4.42	20	
2-Chlorotoluene	18.63	1.0	20	0	93.1	79 - 122	19.01	2.02	20	
2-Hexanone	33.22	2.0	40	0	83.0	57 - 139	32.77	1.36	20	
4-Chlorotoluene	18.52	1.0	20	0	92.6	78 - 122	18.33	1.06	20	
4-Isopropyltoluene	18.39	1.0	20	0	92.0	77 - 127	18.26	0.699	20	
4-Methyl-2-pentanone	33.98	2.0	40	0	84.9	67 - 130	34.06	0.241	20	
Acetone	26.75	2.0	40	0	66.9	39 - 160	27.99	4.55	20	
Benzene	18.07	1.0	20	0	90.4	79 - 120	19.01	5.05	20	
Bromobenzene	17.11	1.0	20	0	85.6	80 - 120	18.06	5.37	20	
Bromochloromethane	16.63	1.0	20	0	83.2	78 - 123	17.55	5.38	20	
Bromodichloromethane	18.75	1.0	20	0	93.8	79 - 125	18.97	1.14	20	
Bromoform	17.47	1.0	20	0	87.3	66 - 130	18.77	7.19	20	
Bromomethane	20.66	1.0	20	0	103	53 - 141	21.79	5.31	20	

ALS Houston, US Date: 30-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
WorkOrder: HS20120247

QC BATCH REPORT

Batch ID: R374913 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS20120247-06MSD** Units: **ug/L** Analysis Date: **17-Dec-2020 17:12**
Client ID: **35AWW24_120320** Run ID: **VOA6_374913** SeqNo: **5887328** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Carbon disulfide	35.85	2.0	40	0	89.6	64 - 133	36.56	1.94	20	
Carbon tetrachloride	20.74	1.0	20	0	104	72 - 136	21.1	1.73	20	
Chlorobenzene	18.03	1.0	20	0	90.2	82 - 118	19.45	7.59	20	
Chloroethane	18.64	1.0	20	0	93.2	60 - 138	18.31	1.81	20	
Chloroform	16.97	1.0	20	0	84.9	79 - 124	17.93	5.5	20	
Chloromethane	14.73	1.0	20	0	73.7	50 - 139	14.14	4.1	20	
cis-1,2-Dichloroethene	17.4	1.0	20	0	87.0	78 - 123	18.21	4.54	20	
cis-1,3-Dichloropropene	17.65	1.0	20	0	88.3	75 - 124	18.49	4.64	20	
Dibromochloromethane	17.69	1.0	20	0	88.4	74 - 126	18.64	5.24	20	
Dibromomethane	18.45	1.0	20	0	92.2	79 - 123	18.46	0.0696	20	
Dichlorodifluoromethane	15.57	1.0	20	0	77.8	32 - 152	15.63	0.421	20	
Ethylbenzene	19.27	1.0	20	0	96.4	79 - 121	19.57	1.52	20	
Hexachlorobutadiene	17.69	1.0	20	0	88.4	66 - 134	16.89	4.65	20	
Isopropylbenzene	19.15	1.0	20	0	95.7	72 - 131	19.77	3.18	20	
m,p-Xylene	37.21	2.0	40	0	93.0	80 - 121	38.57	3.6	20	
Methylene chloride	16.83	2.0	20	0	84.2	74 - 124	17.03	1.13	20	
Naphthalene	19.21	1.0	20	0	96.0	61 - 128	14.76	26.2	20	R
n-Butylbenzene	19.35	1.0	20	0	96.7	75 - 128	18.86	2.57	20	
n-Propylbenzene	19.36	1.0	20	0	96.8	76 - 126	18.96	2.13	20	
o-Xylene	17.94	1.0	20	0	89.7	78 - 122	19.21	6.81	20	
sec-Butylbenzene	18.67	1.0	20	0	93.4	77 - 126	18.5	0.932	20	
Styrene	18.19	1.0	20	0	91.0	78 - 123	19.07	4.69	20	
tert-Butylbenzene	18.63	1.0	20	0	93.2	78 - 124	18.97	1.78	20	
Tetrachloroethene	20.07	1.0	20	0	100	74 - 129	21.73	7.96	20	
Toluene	18.31	1.0	20	0	91.5	80 - 121	19.09	4.18	20	
trans-1,2-Dichloroethene	17.5	1.0	20	0	87.5	75 - 124	18	2.86	20	
trans-1,3-Dichloropropene	18.11	1.0	20	0	90.6	73 - 127	18.76	3.5	20	
Trichloroethene	17.6	1.0	20	0	88.0	79 - 123	18.83	6.76	20	
Trichlorofluoromethane	15.81	1.0	20	0	79.1	65 - 141	16.72	5.61	20	
Vinyl chloride	16.15	1.0	20	0	80.7	58 - 137	16.8	3.99	20	
Surr: 1,2-Dichloroethane-d4	*43.71*	*1.0*	*50*	*0*	*87.4*	*81 - 118*	*44.68*	*2.2*	*20*	
Surr: 4-Bromofluorobenzene	*50.74*	*1.0*	*50*	*0*	*101*	*85 - 114*	*52.87*	*4.11*	*20*	
Surr: Dibromofluoromethane	*44.23*	*1.0*	*50*	*0*	*88.5*	*80 - 119*	*46.94*	*5.95*	*20*	
Surr: Toluene-d8	*49.6*	*1.0*	*50*	*0*	*99.2*	*89 - 112*	*50.86*	*2.51*	*20*	

ALS Houston, US Date: 30-Dec-20

Client:	Bhate Environmental Associates, Inc.
Project:	LHAAP / Site 58
WorkOrder:	HS20120247

QC BATCH REPORT

Batch ID:	**R374913 (0)**	**Instrument:**	**VOA6**	**Method:**	**VOLATILES ORGANICS BY METHOD 8260C**

The following samples were analyzed in this batch:

HS20120247-01	HS20120247-02	HS20120247-03	HS20120247-04
HS20120247-05	HS20120247-06	HS20120247-07	HS20120247-08

ALS Houston, US Date: 30-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
WorkOrder: HS20120247

QC BATCH REPORT

Batch ID: R374034 (0) **Instrument: ICS2100** **Method: ANIONS BY SW9056A**

MBLK Sample ID: **MBLK-** Units: **mg/L** Analysis Date: **05-Dec-2020 08:17**
Client ID: Run ID: **ICS2100_374034** SeqNo: **5865591** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate (As N)	0.100	0.100								U
Nitrogen, Nitrite (As N)	0.100	0.100								U
Sulfate	0.500	0.500								U

LCS Sample ID: **LCS-** Units: **mg/L** Analysis Date: **05-Dec-2020 08:35**
Client ID: Run ID: **ICS2100_374034** SeqNo: **5865592** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate (As N)	4.098	0.100	4	0	102	80 - 120				
Nitrogen, Nitrite (As N)	4.406	0.100	4	0	110	80 - 120				
Sulfate	22.22	0.500	20	0	111	80 - 120				

MS Sample ID: **HS20120240-01MS** Units: **mg/L** Analysis Date: **04-Dec-2020 14:44**
Client ID: Run ID: **ICS2100_374034** SeqNo: **5865580** PrepDate: DF: **100**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate (As N)	196.4	10.0	200	0	98.2	80 - 120				
Nitrogen, Nitrite (As N)	217.8	10.0	200	0	109	80 - 120				
Sulfate	3369	50.0	1000	2444	92.5	80 - 120				

MSD Sample ID: **HS20120240-01MSD** Units: **mg/L** Analysis Date: **04-Dec-2020 15:02**
Client ID: Run ID: **ICS2100_374034** SeqNo: **5865581** PrepDate: DF: **100**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate (As N)	196.5	10.0	200	0	98.3	80 - 120	196.4	0.0611	20	
Nitrogen, Nitrite (As N)	218.1	10.0	200	0	109	80 - 120	217.8	0.147	20	
Sulfate	3420	50.0	1000	2444	97.6	80 - 120	3369	1.49	20	

The following samples were analyzed in this batch: HS20120247-01 HS20120247-02 HS20120247-04 HS20120247-05

ALS Houston, US Date: 30-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
WorkOrder: HS20120247

QC BATCH REPORT

Batch ID: R375028 (0) **Instrument: ICS-Integrion** **Method: ANIONS BY SW9056A**

MBLK Sample ID: **MBLK-121820** Units: **mg/L** Analysis Date: **18-Dec-2020 10:03**
Client ID: Run ID: **ICS-Integrion_375028** SeqNo: **5889985** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	0.500	0.500								U
Sulfate	0.500	0.500								U

LCS Sample ID: **LCS-121820** Units: **mg/L** Analysis Date: **18-Dec-2020 10:21**
Client ID: Run ID: **ICS-Integrion_375028** SeqNo: **5889986** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	18.59	0.500	20	0	92.9	80 - 120				
Sulfate	18.59	0.500	20	0	93.0	80 - 120				

MS Sample ID: **HS20120396-54MS** Units: **mg/L** Analysis Date: **18-Dec-2020 21:50**
Client ID: Run ID: **ICS-Integrion_375028** SeqNo: **5889999** PrepDate: DF: **100**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	1651	50.0	1000	762.7	88.8	80 - 120				
Sulfate	2972	50.0	1000	2216	75.6	80 - 120				S

MSD Sample ID: **HS20120396-54MSD** Units: **mg/L** Analysis Date: **18-Dec-2020 22:08**
Client ID: Run ID: **ICS-Integrion_375028** SeqNo: **5890000** PrepDate: DF: **100**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	1734	50.0	1000	762.7	97.1	80 - 120	1651	4.92	20	
Sulfate	3138	50.0	1000	2216	92.2	80 - 120	2972	5.44	20	

The following samples were analyzed in this batch: HS20120247-01 HS20120247-02 HS20120247-04 HS20120247-05

ALS Houston, US Date: 30-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
WorkOrder: **HS20120247**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL/SDL

Acronym	Description
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitaion Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

Unit Reported	Description
mg/L	Milligrams per Liter

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	20-030-0	26-Mar-2021
California	2919, 2020-2021	30-Apr-2021
Dept of Defense	PJLA L20-507	22-Dec-2021
Florida	E87611-30-07/01/2020	30-Jun-2021
Illinois	2000322020-4	09-May-2021
Kansas	E-10352 2020-2021	31-Jul-2021
Kentucky	123043, 2020-2021	30-Apr-2021
Louisiana	03087, 2020-2021	30-Jun-2021
North Carolina	624-2020	31-Dec-2020
North Dakota	R-193 2020-2021	30-Apr-2021
Oklahoma	2020-165	31-Aug-2021
Texas	T104704231-20-26	30-Apr-2021

ALS Houston, US Date: 30-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP / Site 58
Work Order: HS20120247

SAMPLE TRACKING

Lab Samp ID	Client Sample ID	Action	Date	Person	New Location
HS20120247-01	35AWW20_120320	Login	12/4/2020 1:06:05 PM	JRM	MET046
HS20120247-01	35AWW20_120320	Login	12/4/2020 1:06:05 PM	JRM	Sub
HS20120247-01	35AWW20_120320	Login	12/4/2020 1:06:05 PM	JRM	Sub
HS20120247-01	35AWW20_120320	Login	12/4/2020 1:06:05 PM	JRM	WET204
HS20120247-01	35AWW20_120320	Login	12/4/2020 1:06:05 PM	JRM	VOA062
HS20120247-01	35AWW20_120320	Login	12/4/2020 1:06:05 PM	JRM	Sub
HS20120247-01	35AWW20_120320	Login	12/4/2020 1:06:05 PM	JRM	Sub
HS20120247-02	LHSMW07_120320	Login	12/4/2020 1:12:47 PM	JML	Sub
HS20120247-02	LHSMW07_120320	Login	12/4/2020 1:12:47 PM	JML	Sub
HS20120247-02	LHSMW07_120320	Login	12/4/2020 1:12:47 PM	JML	WET215
HS20120247-02	LHSMW07_120320	Login	12/4/2020 1:12:47 PM	JML	VOA190
HS20120247-02	LHSMW07_120320	Login	12/4/2020 1:12:47 PM	JML	Sub
HS20120247-02	LHSMW07_120320	Login	12/4/2020 1:12:47 PM	JML	Sub
HS20120247-03	35AWW05_120320	Login	12/4/2020 1:12:47 PM	JML	VOA190
HS20120247-04	35AWW23_120320	Login	12/4/2020 1:13:55 PM	JML	Sub
HS20120247-04	35AWW23_120320	Login	12/4/2020 1:13:55 PM	JML	Sub
HS20120247-04	35AWW23_120320	Login	12/4/2020 1:13:55 PM	JML	WET215
HS20120247-04	35AWW23_120320	Login	12/4/2020 1:13:55 PM	JML	VOA190
HS20120247-04	35AWW23_120320	Login	12/4/2020 1:13:55 PM	JML	Sub
HS20120247-04	35AWW23_120320	Login	12/4/2020 1:13:55 PM	JML	Sub
HS20120247-05	35AWW19_120320	Login	12/4/2020 1:13:55 PM	JML	Sub
HS20120247-05	35AWW19_120320	Login	12/4/2020 1:13:55 PM	JML	Sub
HS20120247-05	35AWW19_120320	Login	12/4/2020 1:13:55 PM	JML	WET215
HS20120247-05	35AWW19_120320	Login	12/4/2020 1:13:55 PM	JML	VOA190
HS20120247-05	35AWW19_120320	Login	12/4/2020 1:13:55 PM	JML	Sub
HS20120247-05	35AWW19_120320	Login	12/4/2020 1:13:55 PM	JML	Sub
HS20120247-06	35AWW24_120320	Login	12/4/2020 1:15:53 PM	JML	VOA190
HS20120247-07	LHSMW06_120320	Login	12/4/2020 1:15:53 PM	JML	MET096
HS20120247-07	LHSMW06_120320	Login	12/4/2020 1:15:53 PM	JML	VOA190
HS20120247-08	Trip Blank	Login	12/4/2020 1:15:53 PM	JML	VOA190

ALS Houston, US Date: 30-Dec-20

Sample Receipt Checklist

Work Order ID: HS20120247 **Date/Time Received:** **04-Dec-2020 10:15**

Client Name: Bhate Environmental **Received by:** **Jared R. Makan**

Completed By: */S/ Jared R. Makan* (eSignature) 04-Dec-2020 13:20 (Date/Time) **Reviewed by:** */S/ RJ Modashia* (eSignature) 04-Dec-2020 16:35 (Date/Time)

Matrices: **Water** Carrier name: **FedEx**

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	1 Page(s)
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	COC IDs:None
Samplers name present on COC?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	

Temperature(s)/Thermometer(s):	0.5°C/0.5°C UC/C	IR25
Cooler(s)/Kit(s):	45531	
Date/Time sample(s) sent to storage:	12/04/2020 13:25	

Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:			

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

bhate

1608 13th Avenue South, Suite 300
Birmingham Alabama 35205
Tel: 205-918-4000
Fax: 205-918-4050

Chain of Custody and Analytical Request

Page: _____ of _____

Project/Phase No: NWO1312.0150

COC Number(1): _____

LIMS Number: _____

Facility/Base I.D.: LHAAP

Project/Site Name: LHAAP / Site 58

Client Name:

Collected by: Scott Beesinger

Field Sample ID (30 Characters Max)	Date Collected (dd-mmm-yyyy)	Time Collected (Military) (hhmm)	Sample Depth (beginning - ending)	SA Code (2)	Sample Number (3)	Sample Matrix (4)	Number of containers	VOC	MEE	TOC	Carbon Dioxide	Anions	Arsenic				Ambient Blank Lot Control Number	Equipment Blank Lot Control Number	Trip Blank Lot Control Number	Cooler ID
							Sample Analysis Requested (5)										Quality Assurance Samples (6)			
35AWW20_120320	03 Dec 2020	0725	-	N		WG	11	X	X	X	X	X								
LHSMW07_120320	03 Dec 2020	0815	-	N		WG	11	X	X	X	X	X								
35AWW05_120320	03 Dec 2020	0910	-	N		WG	3	X												
35AWW23_120320	03 Dec 2020	0955		N		WG	11	X	X	X	X	X								
35AWW19_120320	03 Dec 2020	1045		N		WG	11	X	X	X	X	X								
35AWW24_120320	03 Dec 2020	1140	-	N		WG	3	X												
35AWW24_120320_MS	03 Dec 2020	1140	-	MS		WG	3	X												
35AWW24_120320_MSD	03 Dec 2020	1140	-	SD		WG	3	X												
LHSMW06_120320	03 Dec 2020	1230	-	N		WG	4	X					X							
TRIP BLANK	03 Dec 2020		-	TB		W	2	X												
			-																	

COMMENTS: _____

HS20120247

Bhate Environmental Associates, Inc.
LHAAP / Site 58

Custody Transfers Prior to Receipt by Laboratory

Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1. Scott Beesinger	12/3/20	1430	1. JM AM	12-4-20	10:15
2.			2.		
3.			3.		

Sample Delivery Details / Laboratory Receipt

Delivered Directly to Lab: _____ Shipped _____ No.:

_____ Method of Shipment: _____

_____ Fed Ex _____ Airbill Number:

_____ Analytical Lab: ALS 10450 Stanecliff Rd. Suite 210 Houston, TX 77099 (281) 530-5656

ATTN: SONIA WEST Lab Recipient: Delivery Date/Time:

1.) Chain of Custody Number = date collected + custody number (e.g. 09-02-1999-01)

2.) Sample Type (SA) Codes: N = Normal Sample, TB = Trip Blank (-c) Sample, FD = Field Duplicate (-a) Samples, FR = Field Replicate (-b) Samples, EB = Equipment Blank (-d) Samples, MS = Matrix Spike, SD = Matrix Spike Duplicate, AB = Ambient Blank (-e)

3.) Sample Number: Unique sample number collected from a particular location per day. (e.g. Groundwater sample collected from MW-1 on 10/10/99 = 01, if sampled again on 10/10/99 = 02, etc.)

4.) Matrix Codes: GS = Soil Gas, WG = Groundwater, WS = Surface Water, SO = Soil, SE = Sediment, SL = Sludge, SS = Surface Soil Samples, WQ = Aqueous Blank Samples (trip, equipment, ambient, etc), SQ = Soil Blanks

5.) Sample Analysis Requested: Analytical method requested and number of containers provided for each.

6.) Quality assurance samples are assigned by date (ddmmyy) and the sample number associated with the sample (01, 02, etc) (e.g. Equipment blank collected in association with MW-1 on 10/10/99 will be designated 10109901 in the Equipment Blank Lot Control

45531 0.5C IR 25 CFU

ALS
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887

45531

CUSTODY SEAL

Date: 12/3/20 Time: 1430
Name: Scott Beesinger
Company: Pinnacle

Seal Broken By: SM
Date: 12/04/20

45531 DEC 04 2020

Must Deliver Next Business Day
Time and Tempature Sensitive!

45531

ORIGIN ID:SGRA (303) 597-2450
SCOTT BEESINGER
PINNACLE ENVIRONMENTAL ASSOCIATES
1203-B EAST GRAND AVE.
PMB202
MARSHALL, TX 75670
UNITED STATES US

SHIP DATE: 03NOV20
ACTWGT: 1.00 LB MAN
CAD: 3001130/CAFE3211
DIMS: 28x14x14 IN

TO CLIENT SERVICES
ALS LABORATORY GROUP
10450 STANCLIFF ROAD
SUITE 210
HOUSTON TX 77099
(281) 530-5656
REF: LHAAP-68-BO 74790-RJ

RMA:

FedEx Express

FedEx
TRK# 0221 1891 8882 5714

FRI - 04 DEC 10:30A
PRIORITY OVERNIGHT

AB SGRA

77099
TX-US IAH

December 30, 2020 Service Request No:R2011542

RJ Modashia
ALS Laboratory Group
10450 Stancliff Road
Suite 210
Houston, TX 77099-4338

Laboratory Results for: LHAAP / Site-58, HS20120247

Dear RJ,

Enclosed are the results of the sample(s) submitted to our laboratory December 04, 2020
For your reference, these analyses have been assigned our service request number **R2011542.**

All testing was performed according to our laboratory's quality assurance program and met the requirements of the TNI standards except as noted in the case narrative report. Any testing not included in the lab's accreditation is identified on a Non-Certified Analytes report. All results are intended to be considered in their entirety. ALS Environmental is not responsible for use of less than the complete report. Results apply only to the individual samples submitted to the lab for analysis, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s), and represented by Laboratory Control Sample control limits. Any events, such as QC failures or Holding Time exceedances, which may add to the uncertainty are explained in the report narrative or are flagged with qualifiers. The flags are explained in the Report Qualifiers and Definitions page of this report.

Please contact me if you have any questions. My extension is 7471. You may also contact me via email at Brady.Kalkman@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Brady Kalkman
Project Manager

ADDRESS 1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
PHONE +1 585 288 5380 | FAX +1 585 288 8475
ALS Group USA, Corp.
dba ALS Environmental

Narrative Documents

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

1565 Jefferson Rd, Building 300, Rochester, NY 14623 | 585-288-5380 | www.alsglobal.com

Client: ALS Environmental - US
Project: LHAAP / Site-58, HS20120247
Sample Matrix: Water

Service Request: R2011542
Date Received: 12/04/2020

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples for the Tier level IV requested by the client.

Sample Receipt:

Four water samples were received for analysis at ALS Environmental on 12/04/2020. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

Semivoa GC:

No significant anomalies were noted with this analysis.

Approved by _____ Date 12/29/2020

SAMPLE DETECTION SUMMARY

CLIENT ID: 35AWW23_120320			Lab ID: R2011542-003			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Acetic Acid	65		0.56	4.0	mg/L	Organic Acids
Propionic Acid	2.8		0.19	2.0	mg/L	Organic Acids

Sample Receipt Information

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

Client: ALS Environmental - US **Service Request:**R2011542
Project: LHAAP / Site-58, HS20120247/NW01312.0150

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
R2011542-001	35AWW20_120320	12/3/2020	0725
R2011542-002	LHSMW07_120320	12/3/2020	0815
R2011542-003	35AWW23_120320	12/3/2020	0955
R2011542-004	35AWW19_120320	12/3/2020	1045

bhate ENVIRONMENTAL CONSTRUCTION ENERGY

Page: _____ of _____

Project/Phase No: NWO1312.0150

COC Number(1): _____

LIMS Number: _____

1608 13th Avenue South, Suite 300
Birmingham Alabama 35205
Tel: 205-918-4000
Fax: 205-918-4050

Chain of Custody and Analytical Request

Facility/Base I.D.: LHAAP

Project/Site Name: LHAAP / Site 58

Client Name:

Collected by: Scott Beesinger

Field Sample ID (30 Characters Max)	Date Collected (dd-mmm-yyyy)	Time Collected (Military) (hhmm)	Sample Depth (beginning - ending)	SA Code (2)	Sample Number (3)	Sample Matrix (4)	Sample Analysis Requested (5): Number of containers	Volatile Fatty Acids										Quality Assurance Samples (6): Ambient Blank Lot Control Number	Equipment Blank Lot Control Number	Trip Blank Lot Control Number	Cooler ID
35AWW20_120320	03 Dec 2020	0725	-	N		WG	1	X													
LHSMW07_120320	03 Dec 2020	0815	-	N		WG	1	X													
35AWW23_120320	03 Dec 2020	0955	-	N		WG	1	X													
35AWW19_120320	03 Dec 2020	1045		N		WG	1	X													
			-																		
			-																		
			-																		
			-																		
			-																		
			-																		

COMMENTS: _____

Custody Transfers Prior to Receipt by Laboratory

Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1. Scott Beesinger	12/3/20	1430	1.	12/4/2020	09 1035
2.			2.		
3.			3.		

Sample Delivery Details / Laboratory Receipt

Delivered Directly to Lab: _____ Shipped _____ No.:

Method of Shipment: _____

Fed Ex _____ Airbill Number:

Analytical Lab: ALS 10450 Stancliff Rd. Suite 210 Houston, TX 77099 (281) 530-5656

ATTN: SONIA WEST Lab Recipient: Delivery Date/Time:

1.) Chain of Custody Number = date collected + custody number (e.g. 09-02-1999-01)

2.) Sample Type (SA) Codes: N = Normal Sample, TB = Trip Blank (-c) Sample, FD = Field Duplicate (-a) Samples, FR = Field Replicate (-b) Samples, EB = Equipment Blank (-d) Samples, MS = Matrix Spike, SD = Matrix Spike Duplicate, AB = Ambient Blank (-e)

3.) Sample Number: Unique sample number collected from a particular location per day. (e.g. Groundwater sample collected from MW-1 on 10/10/99 = 01, if sampled again on 10/10/99 = 02, etc.)

4.) Matrix Codes: GS = Soil Gas, WG = Groundwater, WS = Surface Water, SO = Soil, SE = Sediment, SL = Sludge, SS = Surface Soil Samples, WQ = Aqueous Blank Samples (trip, equipment, ambient, etc), SQ = Soil Blanks

5.) Sample Analysis Requested: Analytical method requested and number of containers provided for each.

6.) Quality assurance samples are assigned by date (ddmmyy) and the sample number associated with the sample (01, 02, etc) (e.g. Equipment blank collected in association with MW-1 on 10/10/99 will be designated 10109901 in the

R2011542 5
ALS Laboratory Group
LHAAP / Site-58

Cooler Receipt and Preservation Check Form

R2011542 5
ALS Laboratory Group
LHAAP / Site-68

Project/Client Bhefs Folder Number

Cooler received on 12/4/2020 by: CD

COURIER: ALS UPS (FEDEX) VELOCITY CLIENT

1	Were **Custody seals** on outside of cooler?	(Y) N	5a	**Perchlorate** samples have required headspace?	Y N (NA)
2	**Custody papers** properly completed (ink, signed)?	(Y) N	5b	Did VOA vials, Alk,or Sulfide have sig* **bubbles**?	Y N (NA)
3	Did all bottles arrive in good **condition** (unbroken)?	(Y) N	6	Where did the bottles originate?	(ALS/ROC) CLIENT
4	Circle: (**Wet Ice**) **Dry Ice** **Gel packs** present?	(Y) N	7	Soil VOA received as: Bulk Encore 5035set	(NA)

8. Temperature Readings Date: 12/4/2020 Time: 1050 ID: IR#7 (IR#10) From: (Temp Blank) Sample Bottle

Observed Temp (°C)	1.4						
Within 0-6°C?	(Y) N	Y N	Y N	Y N	Y N	Y N	Y N
If <0°C, were samples frozen?	Y N	Y N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: _____ Ice melted Poorly Packed (described below) Same Day Rule

&Client Approval to Run Samples: _____ Standing Approval Client aware at drop-off Client notified by: _____

All samples held in storage location: 2-002 by @ on 12/4/2020 at 1055
5035 samples placed in storage location: _____ by _____ on _____ at _____ within 48 hours of sampling? Y N

Cooler Breakdown/Preservation Check**: Date: 12/5/2020 Time: 1020 by: JW

9. Were all bottle labels complete (*i.e.* analysis, preservation, etc.)? (YES) NO
10. Did all bottle labels and tags agree with custody papers? (YES) NO
11. Were correct containers used for the tests indicated? (YES) NO
12. Were 5035 vials acceptable (no extra labels, not leaking)? YES NO (N/A)
13. Air Samples: Cassettes / Tubes Intact Y / N with MS Y / N Canisters Pressurized Tedlar® Bags Inflated (N/A)

pH	Lot of test paper	Reagent	Preserved? Yes	Preserved? No	Lot Received	Exp	Sample ID Adjusted	Vol. Added	Lot Added	Final pH
≥12		NaOH								
≤2		HNO_3								
≤2		H_2SO_4								
<4		$NaHSO_4$								
5-9		For 608pest			No=Notify for 3day					
Residual Chlorine (-)		For CN, Phenol, 625, 608pest, 522			If +, contact PM to add $Na_2S_2O_3$ (625, 608, CN), ascorbic (phenol).					
		$Na_2S_2O_3$								
		ZnAcetate	-	-			**VOAs and 1664 Not to be tested before analysis. Otherwise, all bottles of all samples with chemical preservatives are checked (not just representatives).			
		HCl	**	**						

Bottle lot numbers: client label

Explain all Discrepancies/ Other Comments:

HPROD	BULK
HTR	FLDT
SUB	HGFB
ALS	LL3541

Labels secondary reviewed by: JW
PC Secondary Review: _____

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

ALS Group USA, Corp.
dba ALS Environmental

Internal Chain of Custody Report

Client: ALS Laboratory Group **Service Request:** R2011542
Project: LHAAP / Site-58, HS20120247/NW01312.0150

Bottle ID	Methods	Date	Time	Sample Location / User	Disposed On
R2011542-001.01					
	Organic Acids				
		12/5/2020	1017	SMO / DWARD	
		12/5/2020	1018	R-002 / DWARD	
		12/5/2020	1018	R-002 / DWARD	
		12/14/2020	1357	In Lab / AFELSER	
		12/14/2020	1511	R-002 / AFELSER	
R2011542-002.01					
	Organic Acids				
		12/5/2020	1017	SMO / DWARD	
		12/5/2020	1018	R-002 / DWARD	
		12/5/2020	1018	R-002 / DWARD	
		12/14/2020	1357	In Lab / AFELSER	
		12/14/2020	1511	R-002 / AFELSER	
R2011542-003.01					
	Organic Acids				
		12/5/2020	1017	SMO / DWARD	
		12/5/2020	1018	R-002 / DWARD	
		12/5/2020	1018	R-002 / DWARD	
		12/14/2020	1357	In Lab / AFELSER	
		12/14/2020	1510	R-002 / AFELSER	
R2011542-004.01					
	Organic Acids				
		12/5/2020	1017	SMO / DWARD	
		12/5/2020	1018	R-002 / DWARD	
		12/5/2020	1018	R-002 / DWARD	
		12/14/2020	1357	In Lab / AFELSER	
		12/14/2020	1510	R-002 / AFELSER	

Miscellaneous Forms

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

ALS Environmental

REPORT QUALIFIERS AND DEFINITIONS

U Analyte was analyzed for but not detected. The sample quantitation limit has been corrected for dilution and for percent moisture, unless otherwise noted in the case narrative.

J Estimated value due to either being a Tentatively Identified Compound (TIC) or that the concentration is between the MRL and the MDL. Concentrations are not verified within the linear range of the calibration. For DoD: concentration >40% difference between two GC columns (pesticides/Arclors).

B Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.

E Inorganics- Concentration is estimated due to the serial dilution was outside control limits.

E Organics- Concentration has exceeded the calibration range for that specific analysis.

D Concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range or that a surrogate has been diluted out of the sample and cannot be assessed.

* Indicates that a quality control parameter has exceeded laboratory limits. Under the ñNotesò column of the Form I, this qualifier denotes analysis was performed out of Holding Time.

H Analysis was performed out of hold time for tests that have an ñimmediateò hold time criteria.

Spike was diluted out.

\+ Correlation coefficient for MSA is <0.995.

N Inorganics- Matrix spike recovery was outside laboratory limits.

N Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.

S Concentration has been determined using Method of Standard Additions (MSA).

W Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.

P Concentration >40% difference between the two GC columns.

C Confirmed by GC/MS

Q DoD reports: indicates a pesticide/Aroclor is not confirmed (Ó100% Difference between two GC columns).

X See Case Narrative for discussion.

MRL Method Reporting Limit. Also known as:
LOQ Limit of Quantitation (LOQ)
The lowest concentration at which the method analyte may be reliably quantified under the method conditions.

MDL Method Detection Limit. A statistical value derived from a study designed to provide the lowest concentration that will be detected 99% of the time. Values between the MDL and MRL are estimated (see J qualifier).

LOD Limit of Detection. A value at or above the MDL which has been verified to be detectable.

ND Non-Detect. Analyte was not detected at the concentration listed. Same as U qualifier.

ACCREDITED IN ACCORDANCE WITH nelac

Rochester Lab ID # for State Certifications[1]

Connecticut ID # PH0556	Maine ID #NY0032	Pennsylvania ID# 68-786
Delaware Approved	New Hampshire ID # 2941	Rhode Island ID # 158
DoD ELAP #65817	New York ID # 10145	Virginia #460167
Florida ID # E87674	North Carolina #676	

[1] Analyses were performed according to our laboratoryôs NELAP-approved quality assurance program and any applicable state or agency requirements. The test results meet requirements of the current NELAP/TNI standards or state or agency requirements, where applicable, except as noted in the case narrative. Since not all analyte/method/matrix combinations are offered for state/NELAC accreditation, this report may contain results which are not accredited. For a specific list of accredited analytes, contact the laboratory or go to https://www.alsglobal.com/locations/americas/north-america/usa/new-york/rochester-environmental

ALS Laboratory Group

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

ALS Group USA, Corp.
dba ALS Environmental

Analyst Summary report

Client:	ALS Environmental - US	**Service Request:**	R2011542
Project:	LHAAP / Site-58, HS20120247/NW01312.0150		

Sample Name:	35AWW20_120320	**Date Collected:**	12/3/20
Lab Code:	R2011542-001	**Date Received:**	12/4/20
Sample Matrix:	Water		

Analysis Method	Extracted/Digested By	Analyzed By
Organic Acids		AFELSER

Sample Name:	LHSMW07_120320	**Date Collected:**	12/3/20
Lab Code:	R2011542-002	**Date Received:**	12/4/20
Sample Matrix:	Water		

Analysis Method	Extracted/Digested By	Analyzed By
Organic Acids		AFELSER

Sample Name:	35AWW23_120320	**Date Collected:**	12/3/20
Lab Code:	R2011542-003	**Date Received:**	12/4/20
Sample Matrix:	Water		

Analysis Method	Extracted/Digested By	Analyzed By
Organic Acids		AFELSER

Sample Name:	35AWW19_120320	**Date Collected:**	12/3/20
Lab Code:	R2011542-004	**Date Received:**	12/4/20
Sample Matrix:	Water		

Analysis Method	Extracted/Digested By	Analyzed By
Organic Acids		AFELSER

INORGANIC PREPARATION METHODS

The preparation methods associated with this report are found in these tables unless discussed in the case narrative.

Water/Liquid Matrix

Analytical Method	Preparation Method
200.7	200.2
200.8	200.2
6010C	3005A/3010A
6020A	ILM05.3
9034 Sulfide Acid Soluble	9030B
SM 4500-CN-E Residual Cyanide	SM 4500-CN-G
SM 4500-CN-E WAD Cyanide	SM 4500-CN-I

Solid/Soil/Non-Aqueous Matrix

Analytical Method	Preparation Method
6010C	3050B
6020A	3050B
6010C TCLP (1311) extract	3005A/3010A
6010 SPLP (1312) extract	3005A/3010A
7199	3060A
300.0 Anions/ 350.1/ 353.2/ SM 2320B/ SM 5210B/ 9056A Anions	DI extraction
For analytical methods not listed, the preparation method is the same as the analytical method reference.	

Sample Results

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

Semivolatile Organic Compounds by GC

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R2011542
Project:	LHAAP / Site-58, HS20120247/NW01312.0150	**Date Collected:**	12/03/20 07:25
Sample Matrix:	Water	**Date Received:**	12/04/20 10:35
Sample Name:	35AWW20_120320	**Units:**	mg/L
Lab Code:	R2011542-001	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND U	0.20	0.10	0.016	1	12/15/20 17:36	
Acetic Acid	ND U	4.0	2.0	0.56	1	12/15/20 17:36	
Butanoic Acid (Butyric Acid)	ND U	2.0	1.0	0.32	1	12/15/20 17:36	
Lactic Acid	ND U	2.0	1.0	0.14	1	12/15/20 17:36	
Propionic Acid	ND U	2.0	1.0	0.19	1	12/15/20 17:36	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R2011542
Project:	LHAAP / Site-58, HS20120247/NW01312.0150	**Date Collected:**	12/03/20 08:15
Sample Matrix:	Water	**Date Received:**	12/04/20 10:35
Sample Name:	LHSMW07_120320	**Units:**	mg/L
Lab Code:	R2011542-002	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND U	0.20	0.10	0.016	1	12/15/20 18:39	
Acetic Acid	ND U	4.0	2.0	0.56	1	12/15/20 18:39	
Butanoic Acid (Butyric Acid)	ND U	2.0	1.0	0.32	1	12/15/20 18:39	
Lactic Acid	ND U	2.0	1.0	0.14	1	12/15/20 18:39	
Propionic Acid	ND U	2.0	1.0	0.19	1	12/15/20 18:39	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R2011542
Project:	LHAAP / Site-58, HS20120247/NW01312.0150	**Date Collected:**	12/03/20 09:55
Sample Matrix:	Water	**Date Received:**	12/04/20 10:35
Sample Name:	35AWW23_120320	**Units:**	mg/L
Lab Code:	R2011542-003	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND U	0.20	0.10	0.016	1	12/15/20 20:40	
Acetic Acid	**65**	4.0	2.0	0.56	1	12/15/20 20:40	
Butanoic Acid (Butyric Acid)	ND U	2.0	1.0	0.32	1	12/15/20 20:40	
Lactic Acid	ND U	2.0	1.0	0.14	1	12/15/20 20:40	
Propionic Acid	**2.8**	2.0	1.0	0.19	1	12/15/20 20:40	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R2011542
Project:	LHAAP / Site-58, HS20120247/NW01312.0150	**Date Collected:**	12/03/20 10:45
Sample Matrix:	Water	**Date Received:**	12/04/20 10:35
Sample Name:	35AWW19_120320	**Units:**	mg/L
Lab Code:	R2011542-004	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND U	0.20	0.10	0.016	1	12/15/20 21:43	
Acetic Acid	ND U	4.0	2.0	0.56	1	12/15/20 21:43	
Butanoic Acid (Butyric Acid)	ND U	2.0	1.0	0.32	1	12/15/20 21:43	
Lactic Acid	ND U	2.0	1.0	0.14	1	12/15/20 21:43	
Propionic Acid	ND U	2.0	1.0	0.19	1	12/15/20 21:43	

QC Summary Forms

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

Semivolatile Organic Compounds by GC

ALS Environmental—Rochester Laboratory
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www.alsglobal.com

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R2011542
Project:	LHAAP / Site-58, HS20120247/NW01312.0150	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	mg/L
Lab Code:	RQ2015512-15	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND U	0.20	0.10	0.016	1	12/16/20 15:08	
Acetic Acid	ND U	4.0	2.0	0.56	1	12/16/20 15:08	
Butanoic Acid (Butyric Acid)	ND U	2.0	1.0	0.32	1	12/16/20 15:08	
Lactic Acid	ND U	2.0	1.0	0.14	1	12/16/20 15:08	
Propionic Acid	ND U	2.0	1.0	0.19	1	12/16/20 15:08	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: LHAAP / Site-58, HS20120247/NW01312.0150
Sample Matrix: Water

Service Request: R2011542
Date Analyzed: 12/16/20

Duplicate Lab Control Sample Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Units:mg/L
Basis:NA

		Lab Control Sample			Duplicate Lab Control Sample					
		RQ2015512-16			RQ2015512-17					
Analyte Name	**Analytical Method**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Pyruvic Acid	Organic Acids	1.59	2.00	80	1.61	2.00	80	73-122	<1	30
Acetic Acid	Organic Acids	21.5	20.0	107	21.8	20.0	109	80-130	2	30
Butanoic Acid (Butyric Acid)	Organic Acids	21.5	20.0	108	21.5	20.0	108	86-128	<1	30
Lactic Acid	Organic Acids	20.4	20.0	102	20.8	20.0	104	81-114	2	30
Propionic Acid	Organic Acids	21.9	20.0	109	22.2	20.0	111	63-153	2	30

LABORATORY REPORT

December 16, 2020

RJ Modashia
ALS Laboratory Group
10450 Stancliff Road Suite 210
Houston, TX 77099-4338

RE: HS20120247

Dear RJ:

Enclosed are the results of the samples submitted to our laboratory on December 8, 2020. For your reference, these analyses have been assigned our service request number P2006888.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

ALS | Environmental

By Hayden Akers at 9:47 am, Dec 16, 2020

Hayden Akers
Project Manager

Client: ALS Laboratory Group Service Request No: P2006888
Project: HS20120247

CASE NARRATIVE

The samples were received intact under chain of custody on December 8, 2020 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Carbon Dioxide Analysis

The samples were analyzed for carbon dioxide using a gas chromatograph equipped with a thermal conductivity detector (TCD). A known amount of liquid was displaced by injecting 8.0 milliliters of helium creating a headspace in the sample vial. Each sample vial was agitated using a sonic disrupter for fifteen minutes and then allowed to equilibrate for at least four hours. A volume of the headspace was withdrawn using a gas-tight syringe and analyzed using a manual injection technique. The amount of dissolved gases (carbon dioxide) in the original sample was calculated using Henry's Law. This method was performed with guidance from RSK 175 as described in laboratory SOP VOA-DISGAS. This analyte is included on the laboratory's NELAP and DoD-ELAP scope of accreditation.

The recovery for the Laboratory Control Sample and its duplicate were below the 80% minimum according to the DoD QSM Limits. However the recoveries were within our laboratory criteria.

Manual integrations were performed on the following samples and analytes. Refer to the raw data for additional information.

Sample Identification(s)	Analyte(s)
P2006888-001	CO2
P2006888-002	CO2
P2006888-003	CO2
P2006888-004	CO2

Methane, Ethene and Ethane Analysis

The samples were also analyzed for methane, ethene, and ethane using a gas chromatograph equipped with a flame ionization detector (FID). A known amount of liquid was displaced by injecting 8.0 milliliters of helium creating a headspace in the sample vial. Each sample vial was agitated using a sonic disrupter for fifteen minutes and then allowed to equilibrate for at least two hours. A volume of the headspace was withdrawn using a gas-tight syringe and analyzed using a manual injection technique. The amount of dissolved gases (methane, ethene and ethane) in the original sample was calculated using Henry's Law. This method was performed with guidance from RSK 175.

Client: ALS Laboratory Group Service Request No: P2006888
Project: HS20120247

CASE NARRATIVE

This method is included on the laboratory's NELAP and DoD-ELAP scope of accreditation. Any analytes flagged with an X are not included on the laboratory's NELAP or DoD-ELAP accreditation.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

ALS Environmental – Simi Valley

CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

Agency	Web Site	Number
Alaska DEC	http://dec.alaska.gov/eh/lab.aspx	17-019
Arizona DHS	http://www.azdhs.gov/preparedness/state-laboratory/lab-licensure-certification/index.php#laboratory-licensure-home	AZ0694
Florida DOH (NELAP)	http://www.floridahealth.gov/licensing-and-regulation/environmental-laboratories/index.html	E871020
Louisiana DEQ (NELAP)	http://www.deq.louisiana.gov/page/la-lab-accreditation	05071
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/professionals/labCert.shtml	2018027
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	1776326
New Jersey DEP (NELAP)	http://www.nj.gov/dep/enforcement/oqa.html	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://www.oregon.gov/oha/ph/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	4068-007
Pennsylvania DEP	http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx	68-03307 (Registration)
PJLA (DoD ELAP)	http://www.pjlabs.com/search-accredited-labs	65818 (Testing)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/agency/qa/env_lab_accreditation.html	T104704413-19-10
Utah DOH (NELAP)	http://health.utah.gov/lab/lab_cert_env	CA016272019-10
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946

Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website.

Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.

ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: ALS Laboratory Group
Service Request: P2006888
Project ID: HS20120247

Date Received: 12/8/2020
Time Received: 09:45

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	RSK 175 - CO2	RSK 175 - Gases
35AWW20_120320	P2006888-001	Water	12/3/2020	07:25	X	X
LHSMW07_120320	P2006888-002	Water	12/3/2020	08:15	X	X
35AWW23_120320	P2006888-003	Water	12/3/2020	09:55	X	X
35AWW19_120320	P2006888-004	Water	12/3/2020	10:45	X	X

PJ06888

10450 Stancliff Rd, Ste 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887
www.alsglobal.com

Subcontract Chain of Custody

SAMPLING STATE: **Texas** **COC ID:** **15272**

SUBCONTRACT TO:

ALS Environmental
2655 Park Center Drive, Suite A
Simi Valley, CA 93065

Phone: +1 805 526 7161

CUSTOMER INFORMATION:

Company:	ALS Houston
Contact:	RJ Modashia
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Email:	RJ.Modashia@alsglobal.com
Alternate Contact:	Jumoke M. Lawal
Email:	jumoke.lawal@alsglobal.com

INVOICE INFORMATION:

Company:	ALS Houston
Contact:	Accounts Payable
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Reference:	HS20120247
TSR:	Danielle Winnings

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS20120247-01**	**35AWW20_120320**	**Groundwater**	**03 Dec 2020 07:25**
	MEE plus CO2. Provide Level II and Level IV reports in separate pdf			17 Dec 2020
2.	**HS20120247-02**	**LHSMW07_120320**	**Groundwater**	**03 Dec 2020 08:15**
	MEE plus CO2. Provide Level II and Level IV reports in separate pdf			17 Dec 2020
3.	**HS20120247-04**	**35AWW23_120320**	**Groundwater**	**03 Dec 2020 09:55**
	MEE plus CO2. Provide Level II and Level IV reports in separate pdf			17 Dec 2020
4.	**HS20120247-05**	**35AWW19_120320**	**Groundwater**	**03 Dec 2020 10:45**
	MEE plus CO2. Provide Level II and Level IV reports in separate pdf			17 Dec 2020

Comments: Please analyze for the analysis listed above.
Send report to the emails shown above.

QC Level: DOD IV (DoD Data Package)

Relinquished By: _____ Date/Time: 12/7/2020 1800

Received By: _____ Date/Time: 12-8-20 0945

Cooler ID(s): _____ Temperature(s): 1° WOT

ALS Environmental
Sample Acceptance Check Form

Client: ALS Laboratory Group Work order: P2006888

Project: HS20120247

Sample(s) received on: 12/8/20 Date opened: 12/8/20 by: ADAVID

Note: This form is used for all samples received by ALS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

		Yes	No	N/A
1	Were **sample containers** properly marked with client sample ID?	☒	☐	☐
2	Did **sample containers** arrive in good condition?	☒	☐	☐
3	Were **chain-of-custody** papers used and filled out?	☒	☐	☐
4	Did **sample container labels** and/or tags agree with custody papers?	☒	☐	☐
5	Was **sample volume** received adequate for analysis?	☒	☐	☐
6	Are samples within specified holding times?	☒	☐	☐
7	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☒	☐	☐
	Cooler Temperature: ° C Blank Temperature: 1° C	Wet Ic		
8	Were **custody seals** on outside of cooler/Box/Container?	☒	☐	☐
	Location of seal(s)? Cooler lid. Sealing Lid?	☒	☐	☐
	Were signature and date included?	☒	☐	☐
	Were seals intact?	☒	☐	☐
9	Do containers have appropriate **preservation**, according to method/SOP or Client specified information?	☒	☐	☐
	Is there a client indication that the submitted samples are **pH** preserved?	☒	☐	☐
	Were **VOA vials** checked for presence/absence of air bubbles?	☒	☐	☐
	Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?	☐	☒	☐
10	**Tubes:** Are the tubes capped and intact?	☐	☐	☒
11	**Badges:** Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P2006888-001.01	40mL VOA NP		7		A	CB 12/11/20
P2006888-001.02	40mL VOA NP				A	
P2006888-001.04	40ml VOA HCL				A	
P2006888-001.05	40ml VOA HCL		1		A	CB 12/11/20
P2006888-001.06	40ml VOA HCL				A	
P2006888-002.01	40mL VOA NP		7		A	CB 12/11/20
P2006888-002.02	40mL VOA NP				A	
P2006888-002.04	40ml VOA HCL		1		A	CB 12/11/20
P2006888-002.05	40ml VOA HCL				A	
P2006888-002.06	40ml VOA HCL				A	
P2006888-003.01	40mL VOA NP		7		A	CB 12/11/20
P2006888-003.02	40mL VOA NP				A	
P2006888-003.04	40ml VOA HCL		1		A	CB 12/11/20
P2006888-003.05	40ml VOA HCL				A	
P2006888-003.06	40ml VOA HCL				A	

Explain any discrepancies: (include lab sample ID numbers):

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS Environmental
Sample Acceptance Check Form

Client: ALS Laboratory Group Work order: P2006888

Project: HS20120247

Sample(s) received on: 12/8/20 Date opened: 12/8/20 by: ADAVID

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P2006888-004.01	40mL VOA NP				A	
P2006888-004.02	40mL VOA NP		5		A	CB 12/11/20
P2006888-004.04	40ml VOA HCL		1		A	CB 12/11/20
P2006888-004.05	40ml VOA HCL				A	
P2006888-004.06	40ml VOA HCL				A	

Explain any discrepancies: (include lab sample ID numbers):

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Project ID: **HS20120247** ALS Project ID: P2006888

Carbon Dioxide

Test Code: RSK 175
Instrument ID: HP5890A/GC10/TCD
Analyst: Connor Barrett/Wade Henton
Matrix: Water
Test Notes:

Date(s) Collected: 12/3/20
Date Received: 12/8/20
Date Analyzed: 12/11/20

Client Sample ID	ALS Sample ID	Injection Volume ml(s)	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
35AWW20_120320	P2006888-001	0.10	**370,000**	1,000	860	370	
LHSMW07_120320	P2006888-002	0.10	**260,000**	1,000	860	370	
35AWW23_120320	P2006888-003	0.050	**540,000**	2,000	1,700	740	
35AWW19_120320	P2006888-004	0.10	**440,000**	1,000	860	370	
Method Control Sample	P201211-MB	0.10	860	1,000	860	370	**U**

The Method Control Sample is laboratory water carried through the entire analytical process.
U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **ALS Laboratory Group**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P2006888
Client Project ID: **HS20120247** ALS Sample ID: P201211-DLCS

Test Code: RSK 175 Date Collected: NA
Instrument ID: HP5890A/GC10/TCD Date Received: NA
Analyst: Connor Barrett/Wade Henton Date Analyzed: 12/11/20
Matrix: Water Volume(s) Analyzed: NA ml(s)
Test Notes:

CAS #	Compound	Spike Amount LCS / DLCS ug/L	Result$_1$ LCS ug/L	Result$_1$ DLCS ug/L	% Recovery LCS	% Recovery DLCS	DOD Acceptance Limits	RPD	RPD Limit	Data Qualifier
124-38-9	Carbon Dioxide	22,900	18,300	17,600	**80**	**77**	80-122	4	12	**L**

$_1$ = The concentration shown includes a subtraction of the Method Control Sample value, even if the result is less than the MRL.
L = Laboratory control sample recovery outside the specified limits, results may be biased low.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **35AWW20_120320**
Client Project ID: **HS20120247**

ALS Project ID: P2006888
ALS Sample ID: P2006888-001

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Connor Barrett/Wade Henton
Matrix: Water
Test Notes:

Date Collected: 12/3/20
Date Received: 12/8/20
Date Analyzed: 12/11/20
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	**1,000**	1.3	1.0	0.51	
74-85-1	Ethene	**11**	1.0	0.55	0.24	
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **LHSMW07_120320**
Client Project ID: **HS20120247**

ALS Project ID: P2006888
ALS Sample ID: P2006888-002

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Connor Barrett/Wade Henton
Matrix: Water
Test Notes:

Date Collected: 12/3/20
Date Received: 12/8/20
Date Analyzed: 12/11/20
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	**810**	1.3	1.0	0.51	
74-85-1	Ethene	**5.9**	1.0	0.55	0.24	
74-84-0	Ethane	**0.42**	0.60	0.47	0.16	**J**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **35AWW23_120320**
Client Project ID: **HS20120247**

ALS Project ID: P2006888
ALS Sample ID: P2006888-003

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Connor Barrett/Wade Henton
Matrix: Water
Test Notes:

Date Collected: 12/3/20
Date Received: 12/8/20
Date Analyzed: 12/11/20
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	**3,700**	1.3	1.0	0.51	
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **35AWW19_120320**
Client Project ID: **HS20120247**

ALS Project ID: P2006888
ALS Sample ID: P2006888-004

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Connor Barrett/Wade Henton
Matrix: Water
Test Notes:

Date Collected: 12/3/20
Date Received: 12/8/20
Date Analyzed: 12/11/20
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	**4.2**	1.3	1.0	0.51	
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **Method Control Sample** ALS Project ID: P2006888
Client Project ID: **HS20120247** ALS Sample ID: P201211-MB

Test Code: RSK 175 Date Collected: NA
Instrument ID: HP5890A/GC10/FID Date Received: NA
Analyst: Connor Barrett/Wade Henton Date Analyzed: 12/11/20
Matrix: Water Volume(s) Analyzed: 0.10 ml(s)
Test Notes:

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	1.0	1.3	1.0	0.51	**U**
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

The Method Control Sample is laboratory water carried through the entire analytical process.
U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **ALS Laboratory Group**
Client Sample ID: **Duplicate Lab Control Sample**
Client Project ID: **HS20120247**

ALS Project ID: P2006888
ALS Sample ID: P201211-LCS
P201211-DLCS

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Connor Barrett/Wade Henton
Matrix: Water
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 12/11/20
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Spike Amount LCS / DLCS µg/L	Result$_1$ LCS µg/L	Result$_1$ DLCS µg/L	% Recovery LCS	% Recovery DLCS	DOD Acceptance Limits	RPD	RPD Limit	Data Qualifier
74-82-8	Methane	2.52	2.38	2.53	**94**	**100**	73-125	6	26	
74-85-1	Ethene	4.40	5.07	4.92	**115**	**112**	72-133	3	11	
74-84-0	Ethane	4.72	4.96	4.94	**105**	**105**	74-131	0	10	

$_1$ = The concentration shown includes a subtraction of the Method Control Sample value, even if the result is less than the MRL.

ALS Environmental
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www.alsglobal.com

December 21, 2020 **Analytical Report for Service Request No:** K2011430

RJ Modashia
ALS Laboratory Group
10450 Stancliff Road
Suite 210
Houston, TX 77099-4338

RE: ALS Houston DOD TOC

Dear RJ,

Enclosed are the results of the sample(s) submitted to our laboratory December 08, 2020
For your reference, these analyses have been assigned our service request number **K2011430.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please contact me if you have any questions. My extension is 3350. You may also contact me via email at Kelley.Lovejoy@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

for Kelley Lovejoy
Project Manager

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Environmental
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Acronyms
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Raw Data
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Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LOD	Limit of Detection
LOQ	Limit of Quantitation
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.
H	The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
J	The result is an estimated value.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimated value.
J	The result is an estimated value.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso
State Certifications, Accreditations, and Licenses

Agency	Web Site	Number
Alaska DEH	http://dec.alaska.gov/eh/lab/cs/csapproval.htm	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2795
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L16-58-R4
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Hawaii DOH	http://health.hawaii.gov/	-
ISO 17025	http://www.pjlabs.com/	L16-57
Louisiana DEQ	http://www.deq.louisiana.gov/page/la-lab-accreditation	03016
Maine DHS	http://www.maine.gov/dhhs/	WA01276
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Nevada DEP	http://ndep.nv.gov/bsdw/labservice.htm	WA01276
New Jersey DEP	http://www.nj.gov/dep/enforcement/oqa.html	WA005
New York - DOH	https://www.wadsworth.org/regulatory/elap	12060
North Carolina DEQ	https://deq.nc.gov/about/divisions/water-resources/water-resources-data/water-sciences-home-page/laboratory-certification-branch/non-field-lab-certification	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA100010
South Carolina DHEC	http://www.scdhec.gov/environment/EnvironmentalLabCertification/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704427
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C544
Wyoming (EPA Region 8)	https://www.epa.gov/region8-waterops/epa-region-8-certified-drinking-water-	-
Kelso Laboratory Website	www.alsglobal.com	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.ALSGlobal.com or at the accreditation bodies web site.
Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/anlayte is offered by that state.

Case Narrative

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
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www.alsglobal.com

1317 South 13th Ave, Kelso, WA 98626 | 1-360-577-7222 | www.alsglobal.com

Client: ALS Environmental - US
Project: ALS Houston DOD TOC
Sample Matrix: Ground Water

Service Request: K2011430
Date Received: 12/08/2020

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples for the Tier level IV requested by the client.

Sample Receipt:

Four ground water samples were received for analysis at ALS Environmental on 12/08/2020. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

General Chemistry:

Method SM 5310 C, 12/17/2020: The matrix spike recovery of Total Organic Carbon for sample 35AWW20_120320 was outside control criteria. Recovery in the Laboratory Control Sample (LCS) was acceptable, which indicated the analytical batch was in control. The matrix spike outlier suggested a potential low bias in this matrix. No further corrective action was appropriate.

Approved by Noe D. Davis Date 12/21/2020

Chain of Custody

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
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K2011430

10450 Stancliff Rd, Ste 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887
www.alsglobal.com

Subcontract Chain of Custody

SAMPLING STATE: **Texas** **COC ID:** **15273**

SUBCONTRACT TO:

ALS Environmental Kelso
1317 S. 13th Avenue
Kelso, WA 98626

Phone: +1 360 501 3312

CUSTOMER INFORMATION:

Company:	ALS Houston
Contact:	RJ Modashia
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Email:	RJ.Modashia@alsglobal.com
Alternate Contact:	Jumoke M. Lawal
Email:	jumoke.lawal@alsglobal.com

INVOICE INFORMATION:

Company:	ALS Houston
Contact:	Accounts Payable
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Reference:	HS20120247
TSR:	Danielle Winnings

	LAB SAMPLE ID / ANALYSIS REQUESTED	CLIENT SAMPLE ID	MATRIX	COLLECT DATE / DUE DATE
1.	**HS20120247-01**	**35AWW20_120320**	**Groundwater**	**03 Dec 2020 07:25**
	TOC: Provide DOD Level II and Level IV reports in separate pdf			17 Dec 2020
2.	**HS20120247-02**	**LHSMW07_120320**	**Groundwater**	**03 Dec 2020 08:15**
	TOC: Provide DOD Level II and Level IV reports in separate pdf			17 Dec 2020
3.	**HS20120247-04**	**35AWW23_120320**	**Groundwater**	**03 Dec 2020 09:55**
	TOC: Provide DOD Level II and Level IV reports in separate pdf			17 Dec 2020
4.	**HS20120247-05**	**35AWW19_120320**	**Groundwater**	**03 Dec 2020 10:45**
	TOC: Provide DOD Level II and Level IV reports in separate pdf			17 Dec 2020

Comments: Please analyze for the analysis listed above.
Send report to the emails shown above.

QC Level: DOD IV (DoD Data Package)

Relinquished By: _____ Date/Time: 12/7/2020 1800

Received By: Nlederson Date/Time: 12/8/20 1000

Cooler ID(s): _____ Temperature(s): _____

PM KL

Cooler Receipt and Preservation Form

Client AS Houston Service Request K20 11430

Received: 12/8/20 Opened: 12/8/20 By: AP Unloaded: 12/8/20 By: AP

1. Samples were received via? *USPS* (*Fed Ex*) *UPS* *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) (*Cooler*) *Box* *Envelope* *Other* _____ *NA*
3. Were custody seals on coolers? NA (Y) N If yes, how many and where? 2 front
   If present, were custody seals intact? (Y) N If present, were they signed and dated? (Y) N
4. Was a Temperature Blank present in cooler? NA (Y) N If yes, notate the temperature in the appropriate column below:
   If no, take the temperature of a representative sample bottle contained within the cooler; notate in the column "Sample Temp":
5. Were samples received within the method specified temperature ranges? NA (Y) N
   If no, were they received on ice and same day as collected? If not, notate the cooler # below and notify the PM. (NA) Y N

If applicable, tissue samples were received: *Frozen* *Partially Thawed* *Thawed*

Temp Blank	Sample Temp	IR Gun	Cooler #/COC ID / NA	Out of temp indicate with "X"	PM Notified If out of temp	Tracking Number NA	Filed
1.1	—	1802	15273	—	—	1891 8883 4329	

6. Packing material: *Inserts* (*Baggies*) (*Bubble Wrap*) *Gel Packs* (*Wet Ice*) *Dry Ice* *Sleeves* _____
7. Were custody papers properly filled out (ink, signed, etc.)? NA (Y) N
8. Were samples received in good condition (unbroken) NA (Y) N
9. Were all sample labels complete (ie, analysis, preservation, etc.)? NA (Y) N
10. Did all sample labels and tags agree with custody papers? NA (Y) N
11. Were appropriate bottles/containers and volumes received for the tests indicated? NA (Y) N
12. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* NA (Y) N
13. Were VOA vials received without headspace? *Indicate in the table below.* (NA) Y N
14. Was C12/Res negative? (NA) Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count Bottle Type	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

Notes, Discrepancies, Resolutions: _____

General Chemistry

ALS Environmental—Kelso Laboratory
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www.alsglobal.com

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	K2011430
Project:	ALS Houston DOD TOC	**Date Collected:**	12/3/20
Sample Matrix:	Ground Water	**Date Received:**	12/8/20
Analysis Method:	SM 5310 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Carbon, Total Organic

Sample Name	Lab Code	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
35AWW20_120320	K2011430-001	**12.0**	0.50	0.20	0.07	1	12/17/20 18:43	
7	K2011430-002	**2.33**	0.50	0.20	0.07	1	12/17/20 18:43	
35AWW23_120320	K2011430-003	**21.4**	0.50	0.20	0.07	1	12/17/20 18:43	
35AWW19_120320	K2011430-004	**1.63**	0.50	0.20	0.07	1	12/17/20 18:43	
Method Blank	K2011430-MB	ND U	0.50	0.20	0.07	1	12/17/20 18:43	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K2011430
Project	ALS Houston DOD TOC	**Date Collected:**	12/03/20
Sample Matrix:	Ground Water	**Date Received:**	12/08/20
		Date Analyzed:	12/17/20

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	35AWW20_120320	**Units:**	mg/L
Lab Code:	K2011430-001	**Basis:**	NA

Analyte Name	Analysis Method	LOQ	LOD	MDL	Sample Result	Duplicate Sample K2011430-001DUP Result	Average	RPD	RPD Limit
Carbon, Total Organic	SM 5310 C	0.50	0.20	0.07	12.0	12.3	12.1	3	10

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K2011430
Project:	ALS Houston DOD TOC	**Date Collected:**	12/03/20
Sample Matrix:	Ground Water	**Date Received:**	12/08/20
		Date Analyzed:	12/17/20
		Date Extracted:	NA

Matrix Spike Summary
Carbon, Total Organic

Sample Name:	35AWW20_120320	**Units:**	mg/L
Lab Code:	K2011430-001	**Basis:**	NA
Analysis Method:	SM 5310 C		
Prep Method:	None		

Matrix Spike
K2011430-001MS

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Carbon, Total Organic	12.0	31.7	25.0	79 *	83-117

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K2011430
Project:	ALS Houston DOD TOC	**Date Analyzed:**	12/17/20
Sample Matrix:	Ground Water	**Date Extracted:**	NA

Lab Control Sample Summary
Carbon, Total Organic

Analysis Method:	SM 5310 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	707530

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K2011430-LCS	23.6	25.0	95	83-117

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	K2011430
Project:	ALS Houston DOD TOC	**Date Collected:**	12/3/20
Sample Matrix:	Ground Water	**Date Received:**	12/8/20
Analysis Method:	SM 5310 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Carbon, Total Organic

Sample Name	Lab Code	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
35AWW20_120320	K2011430-001	**12.0**	0.50	0.20	0.07	1	12/17/20 18:43	
7	K2011430-002	**2.33**	0.50	0.20	0.07	1	12/17/20 18:43	
35AWW23_120320	K2011430-003	**21.4**	0.50	0.20	0.07	1	12/17/20 18:43	
35AWW19_120320	K2011430-004	**1.63**	0.50	0.20	0.07	1	12/17/20 18:43	
Method Blank	K2011430-MB	ND U	0.50	0.20	0.07	1	12/17/20 18:43	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K2011430
Project	ALS Houston DOD TOC	**Date Collected:**	12/03/20
Sample Matrix:	Ground Water	**Date Received:**	12/08/20
		Date Analyzed:	12/17/20

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	35AWW20_120320	**Units:**	mg/L
Lab Code:	K2011430-001	**Basis:**	NA

Analyte Name	Analysis Method	LOQ	LOD	MDL	Sample Result	Duplicate Sample K2011430-001DUP Result	Average	RPD	RPD Limit
Carbon, Total Organic	SM 5310 C	0.50	0.20	0.07	12.0	12.3	12.1	3	10

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K2011430
Project:	ALS Houston DOD TOC	**Date Collected:**	12/03/20
Sample Matrix:	Ground Water	**Date Received:**	12/08/20
		Date Analyzed:	12/17/20
		Date Extracted:	NA

Matrix Spike Summary
Carbon, Total Organic

Sample Name:	35AWW20_120320	**Units:**	mg/L
Lab Code:	K2011430-001	**Basis:**	NA
Analysis Method:	SM 5310 C		
Prep Method:	None		

Matrix Spike
K2011430-001MS

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Carbon, Total Organic	12.0	31.7	25.0	79 *	83-117

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K2011430
Project:	ALS Houston DOD TOC	**Date Analyzed:**	12/17/20
Sample Matrix:	Ground Water	**Date Extracted:**	NA

Lab Control Sample Summary
Carbon, Total Organic

Analysis Method:	SM 5310 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	707530

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K2011430-LCS	23.6	25.0	95	83-117

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US **Service Request:** K2011430
Project: ALS Houston DOD TOC

Continuing Calibration Verification (CCV) Summary

Carbon, Total Organic

Analysis Method: SM 5310 C **Units:** mg/L

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	707530	KQ2020442-01	12/17/20 18:43	25.0	25.3	101	90-110
CCV2	707530	KQ2020442-02	12/17/20 18:43	25.0	25.2	101	90-110
CCV3	707530	KQ2020442-03	12/17/20 18:43	25.0	24.7	99	90-110
CCV4	707530	KQ2020442-04	12/17/20 18:43	25.0	25.0	100	90-110

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US **Service Request:**K2011430
Project: ALS Houston DOD TOC

Continuing Calibration Blank (CCB) Summary
Carbon, Total Organic

Analysis Method: SM 5310 C **Units:**mg/L

	Analysis Lot	Lab Code	Date Analyzed	LOQ	LOD	MDL	Result	Q
CCB1	707530	KQ2020442-05	12/17/20 18:43	0.50	0.20	0.07	ND	U
CCB2	707530	KQ2020442-06	12/17/20 18:43	0.50	0.20	0.07	ND	U
CCB3	707530	KQ2020442-07	12/17/20 18:43	0.50	0.20	0.07	ND	U
CCB4	707530	KQ2020442-08	12/17/20 18:43	0.50	0.20	0.07	ND	U

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Knoxville, TN 37932
Phone: (865) 573-8188
Fax: (865) 573-8133

Client: RJ Modashia
ALS Laboratory Group
10450 Stancliff Rd
Suite 210
Houston, TX 77040

Phone: 281-575-2279

Fax:

Identifier: 019RL **Date Rec:** 12/04/2020 **Report Date:** 12/09/2020

Client Project #: NW01312.0150 **Client Project Name:** LHAAP-58

Purchase Order #:

Test results provided for: CENSUS

Reviewed By:

NOTICE: This report is intended only for the addressee shown above and may contain confidential or privileged information. If the recipient of this material is not the intended recipient or if you have received this in error, please notify Microbial Insights, Inc. immediately. The data and other information in this report represent only the sample(s) analyzed and are rendered upon condition that it is not to be reproduced without approval from Microbial Insights, Inc. Thank you for your cooperation.

Results relate only to the items tested and the sample(s) as received by the laboratory.

MICROBIAL INSIGHTS, INC.

10515 Research Dr., Knoxville, TN 37932
Tel. (865) 573-8188 Fax. (865) 573-8133

CENSUS

Client: **ALS Laboratory Group**
Project: LHAAP-58

MI Project Number: **019RL**
Date Received: 12/04/2020

Sample Information

Client Sample ID:		**35AWW20_120320**	**LHSMW07_120320**	**35AWW23_120320**	**35AWW19_120320**
Sample Date:		12/03/2020	12/03/2020	12/03/2020	12/03/2020
Units:		cells/mL	cells/mL	cells/mL	cells/mL
Analyst/Reviewer:		HT/CB	HT/CB	HT/CB	HT/CB
Dechlorinating Bacteria					
Dehalococcoides	*DHC*	**7.80E+03**	**1.46E+03**	**5.57E+02**	**4.02E+01**
tceA Reductase	TCE	<5.00E-01	<6.00E-01	**3.76E+01**	<6.00E-01
BAV1 Vinyl Chloride Reductase	BVC	**6.55E+03**	**1.20E+00**	<5.00E-01	**5.50E+00**
Vinyl Chloride Reductase	VCR	<5.00E-01	**4.00E+02**	**3.01E+01**	**2.00E-01 (J)**
Dehalobacter spp.	*DHBt*	**4.36E+02**	**1.75E+04**	<5.30E+00	**3.01E+04**

Legend:
NA = Not Analyzed NS = Not Sampled J = Estimated gene copies below PQL but above LQL I = Inhibited
< = Result not detected

Quality Assurance/Quality Control Data

Samples Received **12/4/2020**

Component	Date Prepared	Date Analyzed	Arrival Temperature	Positive Control	Extraction Blank	Negative Control
DHC	12/04/2020	12/09/2020	4 °C	104%	non-detect	non-detect
BVC	12/04/2020	12/09/2020	4 °C	105%	non-detect	non-detect
DHBt	12/04/2020	12/09/2020	4 °C	105%	non-detect	non-detect
TCE	12/04/2020	12/09/2020	4 °C	101%	non-detect	non-detect
VCR	12/04/2020	12/09/2020	4 °C	104%	non-detect	non-detect

How to Use Estimated Percentile Ranks from the Microbial Insights Database

The MI Database and Client Portal

The Microbial Insights Database is the largest collection of field concentrations of key microorganisms and functional genes currently containing qPCR and QuantArray results for more than 32,000 unique groundwater, soil, and sediment samples from all 50 states and 33 countries worldwide. Driven by field samples, the database reflects the impacts of common contaminants, geochemical conditions, and site management practices on critical microbial populations.

With your report, you received a passcode enabling you to retrieve estimates of the percentile ranks of your results based on those compiled in the MI database at no additional charge. When accessing the database, you will be asked to provide background information about the sample (e.g. contaminant concentrations) to aid in understanding the links between environmental conditions and microbial populations. As with all client information provided to MI, site specific data will be treated as confidential.

Is that low, medium or high?

In practice, biodegradation depends not just on the presence but the actual concentrations of the contaminant degrading microorganisms. Simply put, qPCR and QuantArray results demonstrating high concentrations of target microorganisms or functional genes suggest in situ selection, enrichment and growth of those specific contaminant degraders and therefore a greater probability that monitored natural attenuation (MNA) or bioremediation will be successful.

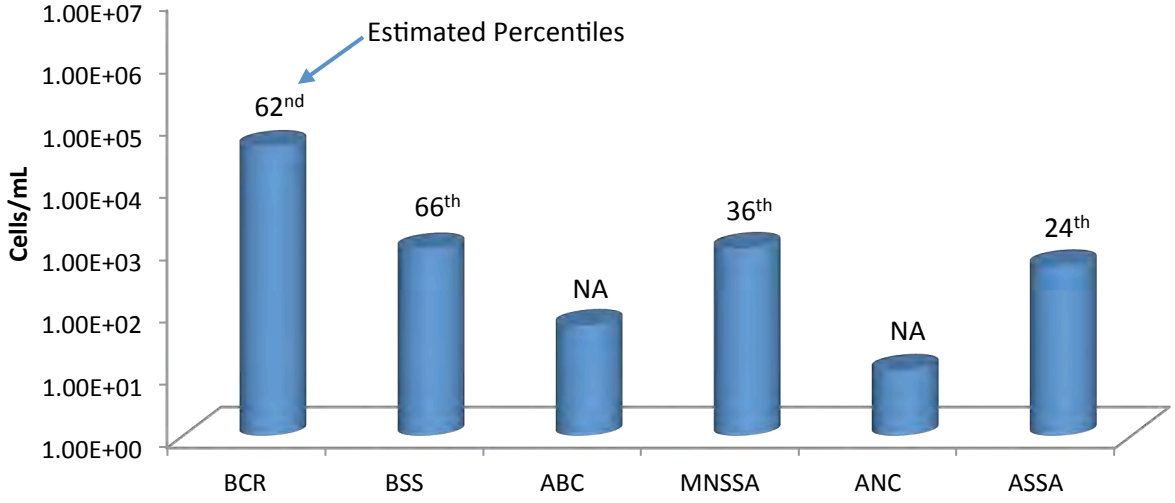
Is that a low, medium, or high concentration? The estimated percentile ranks retrieved from the MI Database answer that question by comparing your qPCR and QuantArray results to those of the literally thousands of other environmental samples submitted to MI for analysis over the last 20+ years.

Using the Estimated Percentile - Interpretation Examples

MNA Assessment – Petroleum Hydrocarbon Site:

Whenever possible, interpretation of qPCR and QuantArray results should include comparisons between samples obtained from background and impacted wells. The estimated percentile ranks however provide an additional avenue for comparison and evaluation of treatment options as shown below.

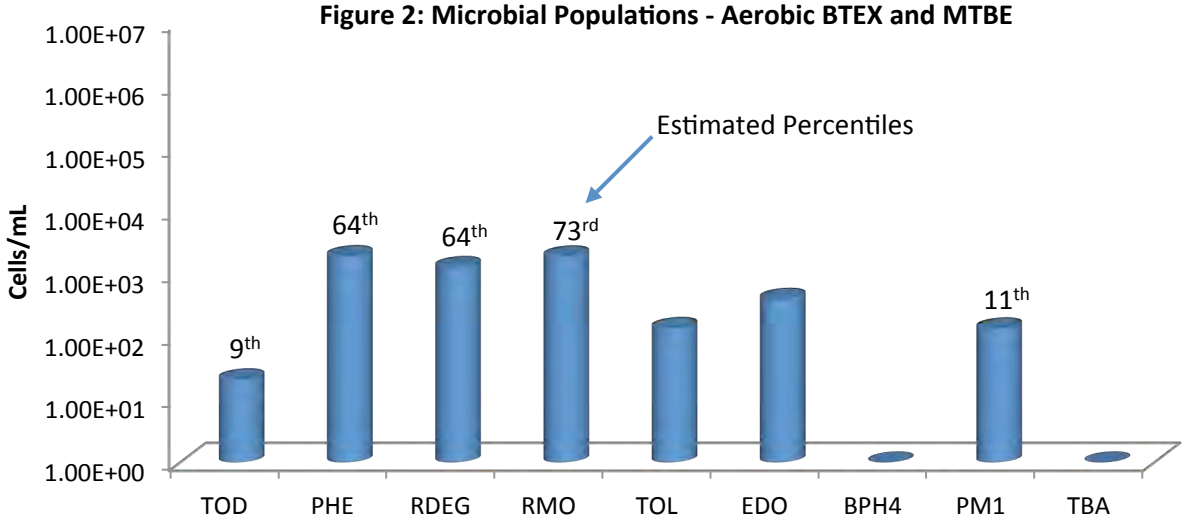
Figure 1: Microbial Populations - Anaerobic BTEX and PAHs



Anaerobic BTEX and PAH Biodegradation (Figure 1):

- With moderate concentrations of functional genes involved in anaerobic BTEX metabolism detected, the QuantArray-Petro® results were encouraging in terms of evaluating biodegradation potential under existing site conditions.
- More specifically, benzylsuccinate synthase (BSS) was detected on the order of nearly 10^3 cells/mL indicating the presence of a substantial population (66^{th} percentile) capable of anaerobic biodegradation of toluene and other alkyl substituted benzenes.
- Naphthyl-2-methylsuccinate synthase (MNSSA) and alkylsuccinate synthase (ASSA) genes were also detected indicating the potential for anaerobic biodegradation of 2-methylnaphthalene and normal alkanes.
- The concentration of MNSSA genes would be considered modest with an estimated percentile of 36^{th}.
- While the percentile rank for MNSSA would be "below average", a number of additional factors should be considered.
    - First, anaerobic hydrocarbon degraders are less prevalent than aerobic BTEX degraders and overall detection frequencies for many genes involved in anaerobic hydrocarbon biodegradation are less than 50%.
    - Therefore, the detection of genes like BSS, MNSSA, ASSA, anaerobic benzene carboxylase (ABC), and anaerobic naphthalene carboxylase (ANC) even at low concentrations is certainly noteworthy and inherently "better than average".
    - The estimated percentiles for all assays are based only on samples where the concentration of the target gene was greater than the practical quantitation limit (PQL).
    - For less commonly detected targets like many of the genes involved in anaerobic hydrocarbon biodegradation this is an especially important consideration.
    - Excluding samples where a gene target is below the PQL ensured that the median concentrations of less commonly detected targets would not be unduly biased low by the fact that the gene is not detected in most samples.
- Anaerobic benzene carboxylase (ABC) and naphthalene carboxylase (ANC) genes were also detected indicating the presence of bacterial populations capable of anaerobic biodegradation of benzene and naphthalene.
- For newly identified genes like ABC and ANC, estimated percentile ranks are not yet available due to the limited number of field samples that have been analyzed to date.
- However, like MNSSA and other genes involved in anaerobic hydrocarbon biodegradation, ABC and ANC detection frequencies are relatively low so the detection of these genes even at low concentrations should be considered when evaluating biodegradation potential under existing site conditions.

Figure 2: Microbial Populations - Aerobic BTEX and MTBE



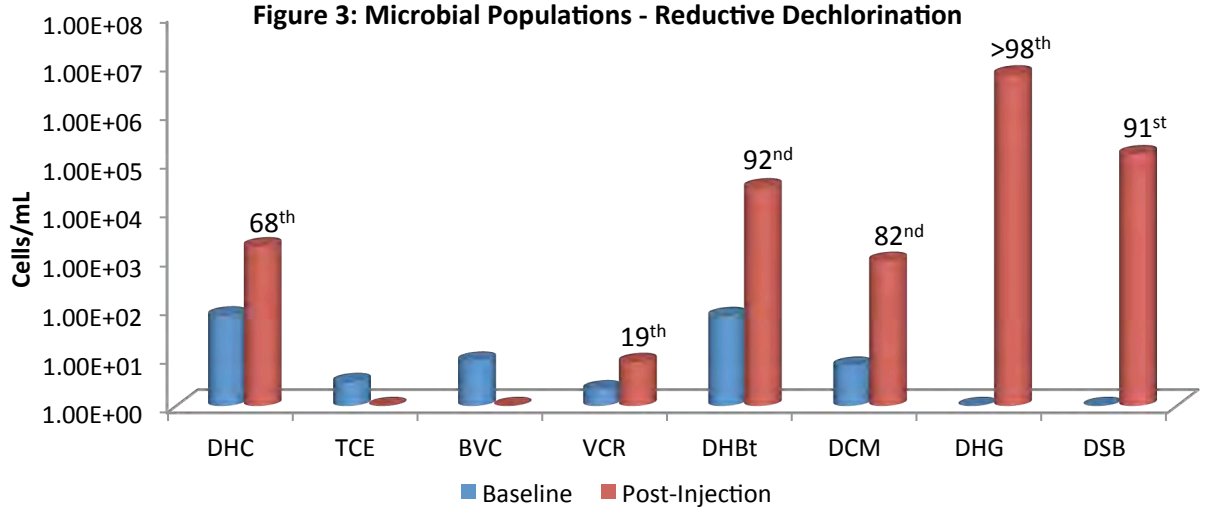
Aerobic BTEX and MTBE Biodegradation (Figure 2):

- With growing evidence that aromatic oxygenases function at low dissolved oxygen concentrations, aerobic BTEX biodegradation pathways should also be evaluated when considering MNA.
- Again, the QuantArray-Petro results were encouraging – genes encoding the first step in multiple pathways for aerobic BTEX biodegradation were detected indicating the presence of a diverse population of aerobic BTEX degraders.
- However, aerobic BTEX degraders are often considered ubiquitous. Therefore answering the question "Is that low, medium or high?" becomes especially important when evaluating aerobic BTEX biodegradation at petroleum hydrocarbon sites.
- In this case, the estimated percentile ranks of the concentrations of toluene/benzene monooxygenase (RMO and RDEG) and phenol hydroxylase (PHE) genes ranged from the 64th to 73rd percentile.
- In other words, the concentrations of RMO, RDEG, and PHE detected in this groundwater sample were greater than the concentrations detected in 64% to 73% of all other groundwater samples where these genes were analyzed and detected above the PQL.
- Aerobic BTEX degraders are common in the environment, but in this sample concentrations of toluene/benzene monooxygenase genes could be viewed as "better than average" when compared to the MI Database.

Biostimulation – Chlorinated Solvent Site:

Whenever possible, interpretation of qPCR and QuantArray results should include comparisons between baseline and post-injection monitoring events as shown below (Figure 3). The estimated percentile ranks however provide an additional avenue for comparison and evaluation of remedy performance.

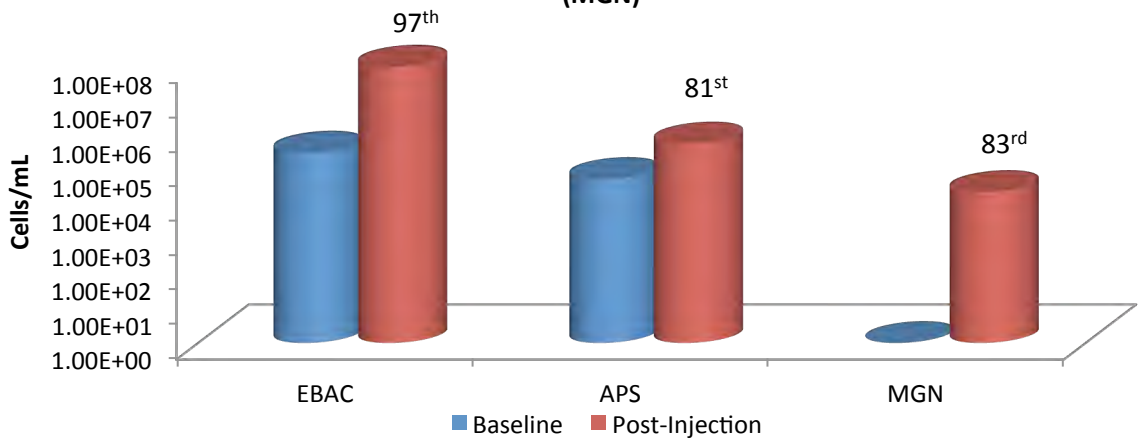
Figure 3: Microbial Populations - Reductive Dechlorination



- During the baseline groundwater sampling event, *Dehalococcoides* and vinyl chloride reductase genes were detected indicating the potential for complete reductive dechlorination of PCE and TCE to ethene.
- However, the *Dehalococcoides* concentration was well below the 10^4 cells/mL recommended by Lu et al. (2006) for generally effective rates of reductive dechlorination.
- Based on qPCR results as well as traditional groundwater monitoring, biostimulation with electron donor addition was selected as the site management plan.
- By the first monitoring event after injection, populations of halorespiring bacteria had increased substantially in response to electron donor addition.
    - *Dehalobacter* populations increased by more than two orders of magnitude to post-injection concentrations greater than 10^4 cells/mL (92^{nd} percentile).
    - *Dehalogenimonas* (10^6 cells/mL) and *Desulfitobacterium* (10^5 cells/mL) which had not been detected prior electron donor addition were present at concentrations greater than observed in over 90% of other groundwater samples where these halorespiring bacteria were detected.
- After injection, *Dehalococcoides* populations increased by more than an order of magnitude to a concentration of over 10^3 cells/mL (68^{th} percentile) demonstrating growth of this key group of halorespiring bacteria.
- Despite a substantial increase and a "better than average" concentration, the *Dehalococcoides* population was still below the 10^4 cells/mL threshold and vinyl chloride reductase gene copies were low (19^{th} percentile).
    - In terms of electron donors and acceptors, the metabolic capabilities of *Dehalococcoides* are rather specialized (hydrogen utilizing obligate halorespiring bacteria) so the median concentration is low. With a low median concentration across the database, a "better than average" *Dehalococcoides* concentration in a given sample may not exceed the 10^4 cells/mL threshold established for effective reductive dechlorination (Lu et al. 2006) and ethene production (Microbial Insights, unpublished data).

- In this case, the initial growth of *Dehalococcoides* was substantial but may have been somewhat hindered by competition with sulfate reducing bacteria (Figure 4 below).
    - The baseline population of sulfate reducing bacteria was moderate (10^4 cells/mL; 63rd percentile). Consistent with an observed decreased in dissolved sulfate concentrations, populations of sulfate reducing bacteria increased and were detected at a relatively high concentration (81st percentile) after electron donor addition.
    - After injection, methanogen populations also increased to a relatively high concentration (83rd percentile) suggesting generation of methanogenic conditions.
- With sulfate depletion and generation of highly anaerobic conditions more conducive to reductive dechlorination, *Dehalococcoides* populations may continue to increase and exceed the 10^4 *Dehalococcoides* cells/mL threshold in subsequent monitoring events.
- Overall, QuantArray analysis conclusively demonstrated that electron donor addition stimulated growth of halorespiring bacteria with the estimated percentiles retrieved from the MI Database providing the "low, medium or high" perspective to the observed changes in microbial populations.

Figure 4: Total Bacteria (EBAC), Sulfate Reducering Bacteria (APS) and Methanogens (MGN)



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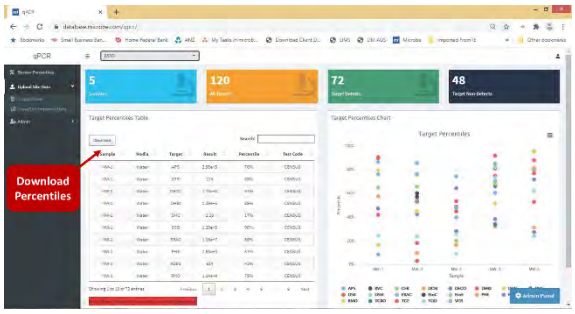
How to Retrieve and Use Percentile Ranks from the Microbial Insights Database

The MI Database

The Microbial Insights Database is the largest collection of field concentrations of key microorganisms and functional genes currently containing qPCR and QuantArray results for more than 70,000 unique groundwater, soil, and sediment samples from all 50 states and 33 countries worldwide.

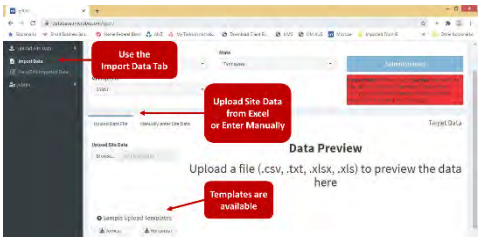
Is that low, medium or high?

In practice, biodegradation depends not just on the presence but the actual concentrations of the contaminant degrading microorganisms. The percentile ranks retrieved from the MI Database answer the question "Is that low, medium or high?" by comparing your results to those of the literally thousands of other environmental samples submitted to MI for analysis.



Retrieving Estimated Percentile Ranks

When you receive your report, you will be emailed a link enabling you to login to the Microbial Insights Database. Click the link and use the Upload Site Data Tab to enter basic information about the sample (e.g. contaminant concentrations) to aid in understanding the links between environmental conditions and microbial populations. Once the site data is entered, you will be able to retrieve the percentile ranks of your results based on those compiled in the MI database at no additional charge.



All site specific data is treated as confidential and uploading is easy.

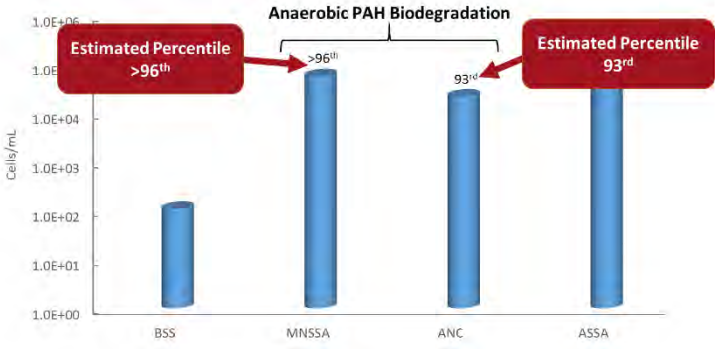
You can even upload chemical and geochemical data from EDDs. Just save as a Tab Delimited text file.

Example - Using Estimated Percentile for MNA Assessment at an MGP Site

CENSUS® qPCR was performed to quantify anaerobic naphthalene carboxylase (ANC) and naphthyl-2-methylsuccinate synthase (MNSSA) to assess anaerobic biodegradation of naphthalene and methyl-naphthalene under existing site conditions.

- Not only were ANC and MNSSA genes detected, but these functional genes responsible for anaerobic biodegradation of PAHs were present at high concentrations based on the percentile ranks.

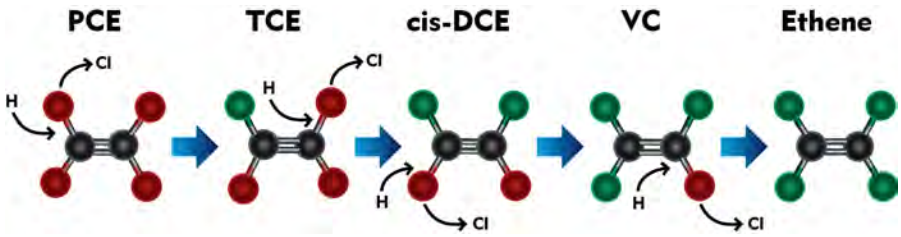
- Demonstrating high concentrations of ANC and MNSSA gave an additional line of evidence indicating growth substantial populations of anaerobic PAH degraders and suggested a greater probability that monitored natural attenuation (MNA) will be successful.



DHC Interpretation

Dehalococcoides 16S rRNA gene (qDHC)

Under anaerobic conditions, tetrachloroethene (PCE) and trichloroethene (TCE) can undergo sequential reductive dechlorination through the daughter products *cis*-dichloroethene (*cis*-DCE) and vinyl chloride to nontoxic ethene (1,2).



While a number of bacterial cultures capable of utilizing PCE and TCE as growth supporting electron acceptors have been isolated (3-7), *Dehalococcoides* spp. may be the most important because they are the only bacterial group that has been isolated to date which is capable of complete reductive dechlorination of PCE to ethene (8). In fact, the presence of *Dehalococcoides* spp. has been associated with complete dechlorination to ethene at sites across North America and Europe (9).

Status	*Dehalococcoides spp.*	Observation
	≥ 10^4 (cells/mL)	Lu et al. proposed that a concentration of 1 x 10^4 DHC cells/mL could be used as a screening criterion to identify sites where reductive dechlorination will yield a generally useful biodegradation rate (10). Similarly, in an internal study conducted with nearly 1000 groundwater samples obtained from sites across the US, ethene production was observed in approximately 80% of samples in which CENSUS® qDHC results were greater than or equal to 10^4 DHC cells/mL.
	10^1 to < 10^4 (cells/mL)	When vinyl chloride reductase genes (See DHC functional genes discussion below) are also detected, complete reductive dechlorination of PCE and TCE to ethene may still occur even with moderate DHC concentrations. When the DHC population is below the 10^4 cells/mL criterion proposed by Lu et al. (10), project managers should carefully consider other site-specific data to determine whether subsurface conditions may be limiting reductive dechlorination. For example, the addition of an electron donor may be able to stimulate DHC growth and enhance anaerobic bioremediation.
	< 10^1 (cells/mL)	DHC concentrations are low suggesting that complete reductive dechlorination of PCE and TCE to ethene is unlikely to occur under existing conditions. Enhanced anaerobic bioremediation options (biostimulation or bioaugmentation) may need to be considered.

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DHC Interpretation

DHC Functional Genes (*tce*A, *bvc*A, *vcr*A)

A "stall" where daughter products *cis*-DCE and vinyl chloride accumulate can occur at PCE- and TCE-impacted sites especially under MNA conditions. The accumulation of vinyl chloride, generally considered more carcinogenic than the parent compounds, is particularly problematic. Although elevated *Dehalococcoides* concentrations correspond to ethene production in numerous studies, the range of chlorinated ethenes metabolized and cometabolized varies among species and strains within the *Dehalococcoides* genus. For example, *Dehalococcoides ethenogenes* str. 195 metabolizes PCE, TCE, and *cis*-DCE and cometabolizes vinyl chloride (8) to produce ethene. Conversely, *Dehalococcoides* sp. CBDB1 utilizes PCE and TCE but does not cometabolize additional chloroethenes (11). Other *Dehalococcoides* strains, such as BAV1, GT and VS, are known to fully dechlorinate cis-DCE and VC to ethene (14,16,19). Quantification of reductive dehalogenase genes is used to more definitively confirm the potential for reductive dechlorination of TCE, cis-DCE, and vinyl chloride (12-15).

Functional Gene	Observation
TCE Reductase	
***tce*A gene**	The *tce*A gene encodes the enzyme responsible for reductive dechlorination of TCE to *cis*-DCE in some strains of *Dehalococcoides*. Absence of *tce*A does not preclude the potential for reductive dechlorination of TCE in the field since the *tce*A gene is not universally distributed among all DHC and is not present in other microorganisms capable of reductive dechlorination of TCE (e.g. *Dehalobacter*). Detection of the *tce*A gene provides an additional line of evidence indicating the potential for dechlorination of TCE.
Vinyl Chloride Reductase	
***bvc*A gene**	The *bvc*A gene encodes the vinyl chloride reductase enzyme responsible for reductive dechlorination of vinyl chloride to ethene by *Dehalococcoides* sp. str. BAV1 (16). Presence of *bvc*A gene indicates the potential for reductive dechlorination of VC to ethene. Absence of both *bvc*A and *vcr*A genes suggests VC may accumulate. An internal study with ~1,000 samples showed ethene production was observed in 80% of the samples that the DHC population was greater than or equal to 10^4 cells/mL. The *bvc*A gene was detected in over 50% of these samples. Van Der Zaan et al (17) noted that the bvcA gene was the only VC reductase gene detected at three of their sites. Alfred Spormann's laboratory at Stanford University (18) reported that the *bvc*A gene was the most abundant and active at the outflow of a PCE fed column study. This section of the column was in the DCE to VC stages of reductive dechlorination thus confirming the importance of the *bvc*A gene for complete reductive dechlorination.
***vcr*A gene**	The *vcr*A gene encodes the vinyl chloride reductase enzyme responsible for reductive dechlorination of *cis*-DCE and vinyl chloride by *Dehalococcoides* sp. strain VS (14). Presence of *vcr*A gene indicates the potential for reductive dechlorination of DCE and/or VC to ethene. Absence of both *bvc*A and *vcr*A genes suggest VC may accumulate. As with the *bvc*A gene, detection of the *vcr*A gene is associated with ethene production in internal studies (67%) and vinyl chloride reduction in independent studies (14, 17).

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DHC Interpretation

Reporting

Microbial Insights can provide a variety of data packages and reporting levels to suit the needs of any project. Data packages range from simple analytical reports with results only to more complex data packages that include a report narrative, analytical results, QC data, and supporting materials including all raw data and chain-of-custody documentation. The figure below shows our standard report and explains the way values are reported.

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CENSUS

Client: Company Name
Project: Your Project Name

MI Project Number: Unique Laboratory Identifier
Date Received: Date Samples Arrived

Sample Information

Client Sample ID:		Sample A	Sample B	Sample C
Sample Date:		00/00/0000	00/00/0000	00/00/0000
Units:		cells/mL	cells/mL	cells/mL
Analyst:		Intials	Intials	Intials
Dechlorinating Bacteria				
Dehalococcoides spp.	DHC	**1.84E+05**	**2.76E+02**	**2.28E+01 (J)**
Functional Genes				
tceA Reductase	TCE	**6.00E+01**	**3.23E+01**	<4.00E-01
bvcA Reductase	BVC	**1.17E+04**	**1.81E+01**	<4.00E-01
vcrA Reducatase	VCR	**8.42E+04**	**1.74E+02**	<4.00E-01

"J" value
Result is an estimated value. This data qualifier (flag) is used when the target gene is detected but at a concentration or abundance below the practical quantification limit (PQL).

Legend:
NA = Not Analyzed NS = Not Sampled J = Estimated gene copies below PQL but above LQL I = Inhibited
< = Result not detected

< value
The target gene was not detected at the limit of quantitation (LOQ) reported for that sample.

"I" value
QA Procedure indicated that the sample may have exhibited PCR inhibition. Although relatively rare, PCR inhibition can occur due to the presence of metals or humic acids at high concentrations in the sample.

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Quality Assurance

Microbial Insights' comprehensive Quality Assurance (QA) Program is the foundation of all laboratory analyses, ensuring that our clients receive high-quality analytical services that are timely, reliable, and meet their intended purpose in a cost effective manner. MI is committed to providing quality data that surpasses regulatory and industry standards, thus enabling the client to make well-informed decisions. MI maintains strict standard operating procedures and QA/QC measures throughout all of the analyses offered. The following Table details specific QA/QC procedures that are used for CENSUS.

QA/QC	Description
Date of Extraction	DNA and RNA extractions are performed the day the samples are received by MI to minimize the possibility of any changes to the microbial community prior to analysis.
Laboratory Method Blanks	An extraction blank (no sample added) is processed alongside each set of field samples from DNA extraction through CENSUS® analysis to ensure that cross contamination has not occurred. Although MI has never experienced this issue, the detection of the CENSUS® target (e.g. *Dehalococcoides*) in an extraction blank is direct evidence of cross contamination with a sample or contamination of a reagent and would invalidate the results. If this were to occur, MI would re-extract the sample. If not possible to re-extract, MI would contact the client immediately and notate it on the laboratory report.
Laboratory Control Samples (LCS)	A laboratory control sample (LCS) or positive control (target DNA) is included with each CENSUS® plate to confirm amplification and as a continuing calibration check.
Negative Controls	A negative control (no DNA) is included with each CENSUS plate to ensure that cross contamination has not occurred during amplification. As with the extraction blank, detection of CENSUS target (e.g. DHC) in a negative control is direct evidence of contamination and would invalidate the results. If this were to occur, MI would rerun the analysis.

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☐ More samples to follow
☑ ~~No~~ Additional Samples

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Please contact us with any questions about the analyses or filling out the COC at (865) 573-8188 (9:00 am to 5:00 pm EST, M-F). After hours email: customerservice@microbe.com

Sample Information					Analyses					CENSUS: Please select the target organism/gene																								
MI ID (Laboratory Use Only)	Sample Name	Date Sampled	Time Sampled	Matrix	PLFA	DGGE+3ID	DGGE+5ID	QuantArray Chlor	QuantArray Petro	DHC (Dehalococcoides)	DHC Functional genes (bvc, tce, vcr)	DHBt (Dehalobacter)	DSM (Desulfuromonas)	DSB (Desulfitobacterium)	EBAC (Total)	SRB (Sulfate Reducing Bacteria-APS)	MGN (Methanogens)	MOB (Methanotrophs)	SMMO	DNF (Denitrifiers-nirS and nirK)	AOB (ammonia oxidizing bacteria)	PM1 (MTBE aerobic)	RMO (Toluene Monooxygenase)	RDEG (Toluene Monooxygenase)	PHE (Phenol Hydroxylase)	NAH (Napthalene-aerobic)	BSSA (Toluene/Xylene-Anaerobic)	add. qPCR:	add. qPCR:	RNA (Expression Option)*	Other:	Other:	Other:
019RL1	35AWW20-120320	12/3/20	0725	WG							X	X																						
2	LHSMW07-120320	12/3/20	0815	WG							X	X																						
3	35AWW23-120320	12/3/20	0955	WG							X	X																						
4	35AWW19-120320	12/3/20	1045	WG							X	X																						

Relinquished by: [signature] 12/3/20 1430 Received by: [signature] Date 12/4/2020

It is vital that chain of custody is filled out correctly & that all relative information is provided.
Failure to provide sufficient and/or correct information regarding reporting, invoicing & analyses requested information may result in delays for which MI will not be liable.

10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
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December 29, 2020

Marcia Olive
Bhate Environmental Associates, Inc.
445 Union Blvd Ste 129
Lakewood, CO 80228

Work Order: **HS20120479**

Laboratory Results for: **LHAAP-58**

Dear Marcia Olive,

ALS Environmental received 10 sample(s) on Dec 09, 2020 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Generated By: JUMOKE.LAWAL
RJ Modashia
Project Manager

ALS Houston, US Date: 29-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Work Order: HS20120479

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS20120479-01	35AWW10_12072020	Groundwater		07-Dec-2020 07:50	09-Dec-2020 10:50	☐
HS20120479-02	35AWW10_12072020_a	Groundwater		07-Dec-2020 07:50	09-Dec-2020 10:50	☐
HS20120479-03	35AWW13_12072020	Groundwater		07-Dec-2020 08:35	09-Dec-2020 10:50	☐
HS20120479-04	35AWW01_12072020	Groundwater		07-Dec-2020 09:25	09-Dec-2020 10:50	☐
HS20120479-05	35AWW21_12072020	Groundwater		07-Dec-2020 11:00	09-Dec-2020 10:50	☐
HS20120479-06	35AWW09_12072020	Groundwater		07-Dec-2020 10:10	09-Dec-2020 10:50	☐
HS20120479-07	35AWW22_12072020	Groundwater		07-Dec-2020 11:40	09-Dec-2020 10:50	☐
HS20120479-08	35AWW12_12072020	Groundwater		07-Dec-2020 12:20	09-Dec-2020 10:50	☐
HS20120479-09	35AWW14_12072020	Groundwater		07-Dec-2020 12:30	09-Dec-2020 10:50	☐
HS20120479-10	Trip Blank	Water	VBLKW-112420-45	07-Dec-2020 00:00	09-Dec-2020 10:50	☐

ALS Houston, US Date: 29-Dec-20

Client: Bhate Environmental Associates, Inc. **CASE NARRATIVE**
Project: LHAAP-58
Work Order: HS20120479

GCMS Volatiles by Method SW8260

Batch ID: R374913

Sample ID: VLCSW-201217

- 1,2,3-Trichlorobenzene exceeded QC limits in the LCS. Samples are non-detect for this compound.

Sample ID: HS20120247-06MSD

- MSD is for an unrelated sample.

Batch ID: R375002

Sample ID: CCV

- 1,2-Dibromo-3-Chloropropane exceeded %D limits for CCV. Samples are non-detect for this compound.

Sample ID: VLCSW-201218

- 1,2,3-Trichlorobenzene exceeded QC limits in the LCS. Samples are non-detect for this compound.

Metals by Method SW6020

Batch ID: 160930

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

ALS Houston, US Date: 29-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW10_12072020
Collection Date: 07-Dec-2020 07:50

ANALYTICAL REPORT
WorkOrder:HS20120479
Lab ID:HS20120479-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 20:42
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 20:42
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	ug/L	1	17-Dec-2020 20:42
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 20:42
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 20:42
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 20:42
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 20:42
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 20:42
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	17-Dec-2020 20:42
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	17-Dec-2020 20:42
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 20:42
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 20:42
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 20:42
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	17-Dec-2020 20:42
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 20:42
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	17-Dec-2020 20:42
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 20:42
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 20:42
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 20:42
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 20:42
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 20:42
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	17-Dec-2020 20:42
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 20:42
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	17-Dec-2020 20:42
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 20:42
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 20:42
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	17-Dec-2020 20:42
Acetone	1.0	U	0.40	1.0	2.0	ug/L	1	17-Dec-2020 20:42
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 20:42
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 20:42
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 20:42
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 20:42
Bromoform	0.50	U	0.40	0.50	1.0	ug/L	1	17-Dec-2020 20:42
Bromomethane	0.50	U	0.40	0.50	1.0	ug/L	1	17-Dec-2020 20:42
Carbon disulfide	1.0	U	0.60	1.0	2.0	ug/L	1	17-Dec-2020 20:42
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	ug/L	1	17-Dec-2020 20:42
Chlorobenzene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 20:42
Chloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 20:42
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 20:42

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 29-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW10_12072020
Collection Date: 07-Dec-2020 07:50

ANALYTICAL REPORT
WorkOrder:HS20120479
Lab ID:HS20120479-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 20:42
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 20:42
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	17-Dec-2020 20:42
Dibromochloromethane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 20:42
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 20:42
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 20:42
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 20:42
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	17-Dec-2020 20:42
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 20:42
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	17-Dec-2020 20:42
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	17-Dec-2020 20:42
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 20:42
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 20:42
Naphthalene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 20:42
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 20:42
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 20:42
Styrene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 20:42
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 20:42
Tetrachloroethene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 20:42
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 20:42
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 20:42
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 20:42
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 20:42
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 20:42
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 20:42
Surr: 1,2-Dichloroethane-d4	*87.8*			**0**	*81-118*	*%REC*	*1*	*17-Dec-2020 20:42*
Surr: 4-Bromofluorobenzene	*92.7*			**0**	*85-114*	*%REC*	*1*	*17-Dec-2020 20:42*
Surr: Dibromofluoromethane	*89.9*			**0**	*80-119*	*%REC*	*1*	*17-Dec-2020 20:42*
Surr: Toluene-d8	*103*			**0**	*89-112*	*%REC*	*1*	*17-Dec-2020 20:42*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 29-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW10_12072020_a
Collection Date: 07-Dec-2020 07:50

ANALYTICAL REPORT
WorkOrder:HS20120479
Lab ID:HS20120479-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 21:03
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 21:03
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	ug/L	1	17-Dec-2020 21:03
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 21:03
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 21:03
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 21:03
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 21:03
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 21:03
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	17-Dec-2020 21:03
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	17-Dec-2020 21:03
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 21:03
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 21:03
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 21:03
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	17-Dec-2020 21:03
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 21:03
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	17-Dec-2020 21:03
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 21:03
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 21:03
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 21:03
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 21:03
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 21:03
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	17-Dec-2020 21:03
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 21:03
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	17-Dec-2020 21:03
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 21:03
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 21:03
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	17-Dec-2020 21:03
Acetone	1.0	U	0.40	1.0	2.0	ug/L	1	17-Dec-2020 21:03
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 21:03
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 21:03
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 21:03
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 21:03
Bromoform	0.50	U	0.40	0.50	1.0	ug/L	1	17-Dec-2020 21:03
Bromomethane	0.50	U	0.40	0.50	1.0	ug/L	1	17-Dec-2020 21:03
Carbon disulfide	1.0	U	0.60	1.0	2.0	ug/L	1	17-Dec-2020 21:03
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	ug/L	1	17-Dec-2020 21:03
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 21:03
Chloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 21:03
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 21:03

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 29-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW10_12072020_a
Collection Date: 07-Dec-2020 07:50

ANALYTICAL REPORT
WorkOrder:HS20120479
Lab ID:HS20120479-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 21:03
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 21:03
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	17-Dec-2020 21:03
Dibromochloromethane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 21:03
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 21:03
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 21:03
Ethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 21:03
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	17-Dec-2020 21:03
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 21:03
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	17-Dec-2020 21:03
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	17-Dec-2020 21:03
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 21:03
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 21:03
Naphthalene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 21:03
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 21:03
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 21:03
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 21:03
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 21:03
Tetrachloroethene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 21:03
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 21:03
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 21:03
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 21:03
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 21:03
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 21:03
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 21:03
Surr: 1,2-Dichloroethane-d4	*86.7*			**0**	*81-118*	*%REC*	*1*	*17-Dec-2020 21:03*
Surr: 4-Bromofluorobenzene	*95.9*			**0**	*85-114*	*%REC*	*1*	*17-Dec-2020 21:03*
Surr: Dibromofluoromethane	*88.2*			**0**	*80-119*	*%REC*	*1*	*17-Dec-2020 21:03*
Surr: Toluene-d8	*100*			**0**	*89-112*	*%REC*	*1*	*17-Dec-2020 21:03*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 29-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW13_12072020
Collection Date: 07-Dec-2020 08:35

ANALYTICAL REPORT
WorkOrder:HS20120479
Lab ID:HS20120479-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 15:26
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 15:26
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	ug/L	1	17-Dec-2020 15:26
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 15:26
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 15:26
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 15:26
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 15:26
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 15:26
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	17-Dec-2020 15:26
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	17-Dec-2020 15:26
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 15:26
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 15:26
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 15:26
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	17-Dec-2020 15:26
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 15:26
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	17-Dec-2020 15:26
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 15:26
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 15:26
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 15:26
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 15:26
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 15:26
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	17-Dec-2020 15:26
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 15:26
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	17-Dec-2020 15:26
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 15:26
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 15:26
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	17-Dec-2020 15:26
Acetone	1.0	U	0.40	1.0	2.0	ug/L	1	17-Dec-2020 15:26
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 15:26
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 15:26
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 15:26
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 15:26
Bromoform	0.50	U	0.40	0.50	1.0	ug/L	1	17-Dec-2020 15:26
Bromomethane	0.50	U	0.40	0.50	1.0	ug/L	1	17-Dec-2020 15:26
Carbon disulfide	1.0	U	0.60	1.0	2.0	ug/L	1	17-Dec-2020 15:26
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	ug/L	1	17-Dec-2020 15:26
Chlorobenzene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 15:26
Chloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 15:26
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 15:26

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 29-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW13_12072020
Collection Date: 07-Dec-2020 08:35

ANALYTICAL REPORT
WorkOrder:HS20120479
Lab ID:HS20120479-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 15:26
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 15:26
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	17-Dec-2020 15:26
Dibromochloromethane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 15:26
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 15:26
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 15:26
Ethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 15:26
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	17-Dec-2020 15:26
Isopropylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 15:26
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	17-Dec-2020 15:26
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	17-Dec-2020 15:26
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 15:26
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 15:26
Naphthalene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 15:26
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 15:26
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 15:26
Styrene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 15:26
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 15:26
Tetrachloroethene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 15:26
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 15:26
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 15:26
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 15:26
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 15:26
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 15:26
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 15:26
Surr: 1,2-Dichloroethane-d4	*90.9*			**0**	*81-118*	*%REC*	*1*	*17-Dec-2020 15:26*
Surr: 4-Bromofluorobenzene	*95.4*			**0**	*85-114*	*%REC*	*1*	*17-Dec-2020 15:26*
Surr: Dibromofluoromethane	*89.2*			**0**	*80-119*	*%REC*	*1*	*17-Dec-2020 15:26*
Surr: Toluene-d8	*103*			**0**	*89-112*	*%REC*	*1*	*17-Dec-2020 15:26*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 29-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW01_12072020
Collection Date: 07-Dec-2020 09:25

ANALYTICAL REPORT
WorkOrder:HS20120479
Lab ID:HS20120479-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 21:24
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 21:24
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	ug/L	1	17-Dec-2020 21:24
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 21:24
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 21:24
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 21:24
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 21:24
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 21:24
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	17-Dec-2020 21:24
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	17-Dec-2020 21:24
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 21:24
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 21:24
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 21:24
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	17-Dec-2020 21:24
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 21:24
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	17-Dec-2020 21:24
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 21:24
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 21:24
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 21:24
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 21:24
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 21:24
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	17-Dec-2020 21:24
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 21:24
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	17-Dec-2020 21:24
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 21:24
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 21:24
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	17-Dec-2020 21:24
Acetone	1.0	U	0.40	1.0	2.0	ug/L	1	17-Dec-2020 21:24
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 21:24
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 21:24
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 21:24
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 21:24
Bromoform	0.50	U	0.40	0.50	1.0	ug/L	1	17-Dec-2020 21:24
Bromomethane	0.50	U	0.40	0.50	1.0	ug/L	1	17-Dec-2020 21:24
Carbon disulfide	1.0	U	0.60	1.0	2.0	ug/L	1	17-Dec-2020 21:24
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	ug/L	1	17-Dec-2020 21:24
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 21:24
Chloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 21:24
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 21:24

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 29-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW01_12072020
Collection Date: 07-Dec-2020 09:25

ANALYTICAL REPORT
WorkOrder:HS20120479
Lab ID:HS20120479-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 21:24
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 21:24
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	17-Dec-2020 21:24
Dibromochloromethane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 21:24
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 21:24
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 21:24
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 21:24
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	17-Dec-2020 21:24
Isopropylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 21:24
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	17-Dec-2020 21:24
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	17-Dec-2020 21:24
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 21:24
n-Propylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 21:24
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 21:24
o-Xylene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 21:24
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 21:24
Styrene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 21:24
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 21:24
Tetrachloroethene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 21:24
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 21:24
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 21:24
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 21:24
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 21:24
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 21:24
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 21:24
Surr: 1,2-Dichloroethane-d4	*87.6*			**0**	*81-118*	*%REC*	*1*	*17-Dec-2020 21:24*
Surr: 4-Bromofluorobenzene	*94.5*			**0**	*85-114*	*%REC*	*1*	*17-Dec-2020 21:24*
Surr: Dibromofluoromethane	*90.6*			**0**	*80-119*	*%REC*	*1*	*17-Dec-2020 21:24*
Surr: Toluene-d8	*103*			**0**	*89-112*	*%REC*	*1*	*17-Dec-2020 21:24*
METALS BY ICPMS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 21-Dec-2020		Analyst: JHD
Arsenic	0.00100	U	0.000400	0.00100	0.00500	mg/L	1	24-Dec-2020 11:21

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 29-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW21_12072020
Collection Date: 07-Dec-2020 11:00

ANALYTICAL REPORT
WorkOrder:HS20120479
Lab ID:HS20120479-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 21:45
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 21:45
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	ug/L	1	17-Dec-2020 21:45
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 21:45
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 21:45
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 21:45
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 21:45
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 21:45
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	17-Dec-2020 21:45
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	17-Dec-2020 21:45
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 21:45
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 21:45
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 21:45
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	17-Dec-2020 21:45
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 21:45
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	17-Dec-2020 21:45
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 21:45
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 21:45
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 21:45
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 21:45
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 21:45
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	17-Dec-2020 21:45
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 21:45
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	17-Dec-2020 21:45
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 21:45
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 21:45
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	17-Dec-2020 21:45
Acetone	1.0	U	0.40	1.0	2.0	ug/L	1	17-Dec-2020 21:45
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 21:45
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 21:45
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 21:45
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 21:45
Bromoform	0.50	U	0.40	0.50	1.0	ug/L	1	17-Dec-2020 21:45
Bromomethane	0.50	U	0.40	0.50	1.0	ug/L	1	17-Dec-2020 21:45
Carbon disulfide	1.0	U	0.60	1.0	2.0	ug/L	1	17-Dec-2020 21:45
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	ug/L	1	17-Dec-2020 21:45
Chlorobenzene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 21:45
Chloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 21:45
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 21:45

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 29-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW21_12072020
Collection Date: 07-Dec-2020 11:00

ANALYTICAL REPORT
WorkOrder:HS20120479
Lab ID:HS20120479-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 21:45
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 21:45
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	17-Dec-2020 21:45
Dibromochloromethane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 21:45
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 21:45
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 21:45
Ethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 21:45
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	17-Dec-2020 21:45
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 21:45
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	17-Dec-2020 21:45
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	17-Dec-2020 21:45
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 21:45
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 21:45
Naphthalene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 21:45
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 21:45
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 21:45
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 21:45
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 21:45
Tetrachloroethene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 21:45
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 21:45
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 21:45
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 21:45
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 21:45
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 21:45
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 21:45
Surr: 1,2-Dichloroethane-d4	*89.9*			**0**	*81-118*	*%REC*	*1*	*17-Dec-2020 21:45*
Surr: 4-Bromofluorobenzene	*94.0*			**0**	*85-114*	*%REC*	*1*	*17-Dec-2020 21:45*
Surr: Dibromofluoromethane	*90.3*			**0**	*80-119*	*%REC*	*1*	*17-Dec-2020 21:45*
Surr: Toluene-d8	*103*			**0**	*89-112*	*%REC*	*1*	*17-Dec-2020 21:45*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 29-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW09_12072020
Collection Date: 07-Dec-2020 10:10

ANALYTICAL REPORT
WorkOrder:HS20120479
Lab ID:HS20120479-06
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 16:29
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 16:29
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	ug/L	1	17-Dec-2020 16:29
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 16:29
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 16:29
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 16:29
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 16:29
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 16:29
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	17-Dec-2020 16:29
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	17-Dec-2020 16:29
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 16:29
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 16:29
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 16:29
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	17-Dec-2020 16:29
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 16:29
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	17-Dec-2020 16:29
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 16:29
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 16:29
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 16:29
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 16:29
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 16:29
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	17-Dec-2020 16:29
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 16:29
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	17-Dec-2020 16:29
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 16:29
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 16:29
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	17-Dec-2020 16:29
Acetone	1.0	U	0.40	1.0	2.0	ug/L	1	17-Dec-2020 16:29
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 16:29
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 16:29
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 16:29
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 16:29
Bromoform	0.50	U	0.40	0.50	1.0	ug/L	1	17-Dec-2020 16:29
Bromomethane	0.50	U	0.40	0.50	1.0	ug/L	1	17-Dec-2020 16:29
Carbon disulfide	1.0	U	0.60	1.0	2.0	ug/L	1	17-Dec-2020 16:29
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	ug/L	1	17-Dec-2020 16:29
Chlorobenzene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 16:29
Chloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 16:29
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 16:29

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 29-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW09_12072020
Collection Date: 07-Dec-2020 10:10

ANALYTICAL REPORT
WorkOrder:HS20120479
Lab ID:HS20120479-06
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 16:29
cis-1,2-Dichloroethene	**1.1**		**0.20**	**0.50**	**1.0**	**ug/L**	1	17-Dec-2020 16:29
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	17-Dec-2020 16:29
Dibromochloromethane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 16:29
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 16:29
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 16:29
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 16:29
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	17-Dec-2020 16:29
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 16:29
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	17-Dec-2020 16:29
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	17-Dec-2020 16:29
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 16:29
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 16:29
Naphthalene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 16:29
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 16:29
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 16:29
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 16:29
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 16:29
Tetrachloroethene	**370**		**1.5**	**2.5**	**5.0**	**ug/L**	5	18-Dec-2020 16:59
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 16:29
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 16:29
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 16:29
Trichloroethene	**140**		**0.20**	**0.50**	**1.0**	**ug/L**	1	17-Dec-2020 16:29
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 16:29
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 16:29
Surr: 1,2-Dichloroethane-d4	*90.5*			**0**	*81-118*	*%REC*	*1*	*17-Dec-2020 16:29*
Surr: 1,2-Dichloroethane-d4	*87.6*			**0**	*81-118*	*%REC*	*5*	*18-Dec-2020 16:59*
Surr: 4-Bromofluorobenzene	*96.2*			**0**	*85-114*	*%REC*	*1*	*17-Dec-2020 16:29*
Surr: 4-Bromofluorobenzene	*95.8*			**0**	*85-114*	*%REC*	*5*	*18-Dec-2020 16:59*
Surr: Dibromofluoromethane	*90.2*			**0**	*80-119*	*%REC*	*1*	*17-Dec-2020 16:29*
Surr: Dibromofluoromethane	*90.0*			**0**	*80-119*	*%REC*	*5*	*18-Dec-2020 16:59*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*1*	*17-Dec-2020 16:29*
Surr: Toluene-d8	*106*			**0**	*89-112*	*%REC*	*5*	*18-Dec-2020 16:59*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 29-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW22_12072020
Collection Date: 07-Dec-2020 11:40

ANALYTICAL REPORT
WorkOrder:HS20120479
Lab ID:HS20120479-07
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 22:06
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 22:06
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	ug/L	1	17-Dec-2020 22:06
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 22:06
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 22:06
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 22:06
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 22:06
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 22:06
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	17-Dec-2020 22:06
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	17-Dec-2020 22:06
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 22:06
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 22:06
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 22:06
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	17-Dec-2020 22:06
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 22:06
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	17-Dec-2020 22:06
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 22:06
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 22:06
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 22:06
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 22:06
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 22:06
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	17-Dec-2020 22:06
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 22:06
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	17-Dec-2020 22:06
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 22:06
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 22:06
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	17-Dec-2020 22:06
Acetone	1.0	U	0.40	1.0	2.0	ug/L	1	17-Dec-2020 22:06
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 22:06
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 22:06
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 22:06
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 22:06
Bromoform	0.50	U	0.40	0.50	1.0	ug/L	1	17-Dec-2020 22:06
Bromomethane	0.50	U	0.40	0.50	1.0	ug/L	1	17-Dec-2020 22:06
Carbon disulfide	1.0	U	0.60	1.0	2.0	ug/L	1	17-Dec-2020 22:06
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	ug/L	1	17-Dec-2020 22:06
Chlorobenzene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 22:06
Chloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 22:06
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 22:06

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 29-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW22_12072020
Collection Date: 07-Dec-2020 11:40

ANALYTICAL REPORT
WorkOrder:HS20120479
Lab ID:HS20120479-07
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 22:06
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 22:06
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	17-Dec-2020 22:06
Dibromochloromethane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 22:06
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 22:06
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 22:06
Ethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 22:06
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	17-Dec-2020 22:06
Isopropylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 22:06
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	17-Dec-2020 22:06
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	17-Dec-2020 22:06
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 22:06
n-Propylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 22:06
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 22:06
o-Xylene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 22:06
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 22:06
Styrene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 22:06
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 22:06
Tetrachloroethene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 22:06
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 22:06
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 22:06
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 22:06
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 22:06
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 22:06
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 22:06
Surr: 1,2-Dichloroethane-d4	*87.3*			**0**	*81-118*	*%REC*	*1*	*17-Dec-2020 22:06*
Surr: 4-Bromofluorobenzene	*97.1*			**0**	*85-114*	*%REC*	*1*	*17-Dec-2020 22:06*
Surr: Dibromofluoromethane	*89.4*			**0**	*80-119*	*%REC*	*1*	*17-Dec-2020 22:06*
Surr: Toluene-d8	*103*			**0**	*89-112*	*%REC*	*1*	*17-Dec-2020 22:06*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 29-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW12_12072020
Collection Date: 07-Dec-2020 12:20

ANALYTICAL REPORT
WorkOrder:HS20120479
Lab ID:HS20120479-08
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 22:27
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 22:27
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	ug/L	1	17-Dec-2020 22:27
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 22:27
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 22:27
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 22:27
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 22:27
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 22:27
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	17-Dec-2020 22:27
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	17-Dec-2020 22:27
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 22:27
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 22:27
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 22:27
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	17-Dec-2020 22:27
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 22:27
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	17-Dec-2020 22:27
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 22:27
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 22:27
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 22:27
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 22:27
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 22:27
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	17-Dec-2020 22:27
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 22:27
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	17-Dec-2020 22:27
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 22:27
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 22:27
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	17-Dec-2020 22:27
Acetone	1.0	U	0.40	1.0	2.0	ug/L	1	17-Dec-2020 22:27
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 22:27
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 22:27
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 22:27
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 22:27
Bromoform	0.50	U	0.40	0.50	1.0	ug/L	1	17-Dec-2020 22:27
Bromomethane	0.50	U	0.40	0.50	1.0	ug/L	1	17-Dec-2020 22:27
Carbon disulfide	1.0	U	0.60	1.0	2.0	ug/L	1	17-Dec-2020 22:27
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	ug/L	1	17-Dec-2020 22:27
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 22:27
Chloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 22:27
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 22:27

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 29-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW12_12072020
Collection Date: 07-Dec-2020 12:20

ANALYTICAL REPORT
WorkOrder:HS20120479
Lab ID:HS20120479-08
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 22:27
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 22:27
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	17-Dec-2020 22:27
Dibromochloromethane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 22:27
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 22:27
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 22:27
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 22:27
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	17-Dec-2020 22:27
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 22:27
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	17-Dec-2020 22:27
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	17-Dec-2020 22:27
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	17-Dec-2020 22:27
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 22:27
Naphthalene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 22:27
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 22:27
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 22:27
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 22:27
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	17-Dec-2020 22:27
Tetrachloroethene	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 22:27
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 22:27
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 22:27
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 22:27
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 22:27
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	17-Dec-2020 22:27
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	17-Dec-2020 22:27
Surr: 1,2-Dichloroethane-d4	*85.5*			**0**	*81-118*	*%REC*	*1*	*17-Dec-2020 22:27*
Surr: 4-Bromofluorobenzene	*98.5*			**0**	*85-114*	*%REC*	*1*	*17-Dec-2020 22:27*
Surr: Dibromofluoromethane	*89.5*			**0**	*80-119*	*%REC*	*1*	*17-Dec-2020 22:27*
Surr: Toluene-d8	*102*			**0**	*89-112*	*%REC*	*1*	*17-Dec-2020 22:27*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 29-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW14_12072020
Collection Date: 07-Dec-2020 12:30

ANALYTICAL REPORT
WorkOrder:HS20120479
Lab ID:HS20120479-09
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	18-Dec-2020 13:29
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	18-Dec-2020 13:29
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	ug/L	1	18-Dec-2020 13:29
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	18-Dec-2020 13:29
1,1-Dichloroethane	**13**		**0.20**	**0.50**	**1.0**	**ug/L**	1	18-Dec-2020 13:29
1,1-Dichloroethene	**9.4**		**0.20**	**0.50**	**1.0**	**ug/L**	1	18-Dec-2020 13:29
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	18-Dec-2020 13:29
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	18-Dec-2020 13:29
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	18-Dec-2020 13:29
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	18-Dec-2020 13:29
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	18-Dec-2020 13:29
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	18-Dec-2020 13:29
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	18-Dec-2020 13:29
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	18-Dec-2020 13:29
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	18-Dec-2020 13:29
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	18-Dec-2020 13:29
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	18-Dec-2020 13:29
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	18-Dec-2020 13:29
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	18-Dec-2020 13:29
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	18-Dec-2020 13:29
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	18-Dec-2020 13:29
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	18-Dec-2020 13:29
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	18-Dec-2020 13:29
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	18-Dec-2020 13:29
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	18-Dec-2020 13:29
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	ug/L	1	18-Dec-2020 13:29
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	18-Dec-2020 13:29
Acetone	**12**		**0.40**	**1.0**	**2.0**	**ug/L**	1	18-Dec-2020 13:29
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	18-Dec-2020 13:29
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	18-Dec-2020 13:29
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	18-Dec-2020 13:29
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	18-Dec-2020 13:29
Bromoform	0.50	U	0.40	0.50	1.0	ug/L	1	18-Dec-2020 13:29
Bromomethane	0.50	U	0.40	0.50	1.0	ug/L	1	18-Dec-2020 13:29
Carbon disulfide	1.0	U	0.60	1.0	2.0	ug/L	1	18-Dec-2020 13:29
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	ug/L	1	18-Dec-2020 13:29
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	18-Dec-2020 13:29
Chloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	18-Dec-2020 13:29
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	18-Dec-2020 13:29

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 29-Dec-20

Client: Bhate Environmental Associates, Inc. **ANALYTICAL REPORT**
Project: LHAAP-58 WorkOrder:HS20120479
Sample ID: 35AWW14_12072020 Lab ID:HS20120479-09
Collection Date: 07-Dec-2020 12:30 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	18-Dec-2020 13:29
cis-1,2-Dichloroethene	**4.5**		**0.20**	**0.50**	**1.0**	**ug/L**	1	18-Dec-2020 13:29
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	18-Dec-2020 13:29
Dibromochloromethane	0.50	U	0.30	0.50	1.0	ug/L	1	18-Dec-2020 13:29
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	18-Dec-2020 13:29
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	18-Dec-2020 13:29
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	18-Dec-2020 13:29
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	18-Dec-2020 13:29
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	18-Dec-2020 13:29
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	18-Dec-2020 13:29
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	18-Dec-2020 13:29
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	18-Dec-2020 13:29
n-Propylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	18-Dec-2020 13:29
Naphthalene	0.50	U	0.30	0.50	1.0	ug/L	1	18-Dec-2020 13:29
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	18-Dec-2020 13:29
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	18-Dec-2020 13:29
Styrene	0.50	U	0.30	0.50	1.0	ug/L	1	18-Dec-2020 13:29
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	18-Dec-2020 13:29
Tetrachloroethene	0.50	U	0.30	0.50	1.0	ug/L	1	18-Dec-2020 13:29
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	18-Dec-2020 13:29
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	18-Dec-2020 13:29
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	18-Dec-2020 13:29
Trichloroethene	**11**		**0.20**	**0.50**	**1.0**	**ug/L**	1	18-Dec-2020 13:29
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	18-Dec-2020 13:29
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	18-Dec-2020 13:29
Surr: 1,2-Dichloroethane-d4	*90.2*			**0**	*81-118*	*%REC*	*1*	*18-Dec-2020 13:29*
Surr: 4-Bromofluorobenzene	*90.8*			**0**	*85-114*	*%REC*	*1*	*18-Dec-2020 13:29*
Surr: Dibromofluoromethane	*88.4*			**0**	*80-119*	*%REC*	*1*	*18-Dec-2020 13:29*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*1*	*18-Dec-2020 13:29*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 29-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: Trip Blank
Collection Date: 07-Dec-2020 00:00

ANALYTICAL REPORT
WorkOrder:HS20120479
Lab ID:HS20120479-10
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	18-Dec-2020 13:07
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	18-Dec-2020 13:07
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	ug/L	1	18-Dec-2020 13:07
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	18-Dec-2020 13:07
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	18-Dec-2020 13:07
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	18-Dec-2020 13:07
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	ug/L	1	18-Dec-2020 13:07
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	18-Dec-2020 13:07
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	18-Dec-2020 13:07
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	18-Dec-2020 13:07
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	18-Dec-2020 13:07
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	18-Dec-2020 13:07
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	18-Dec-2020 13:07
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	18-Dec-2020 13:07
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	18-Dec-2020 13:07
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	ug/L	1	18-Dec-2020 13:07
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	18-Dec-2020 13:07
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	18-Dec-2020 13:07
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	ug/L	1	18-Dec-2020 13:07
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	18-Dec-2020 13:07
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	18-Dec-2020 13:07
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	18-Dec-2020 13:07
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	ug/L	1	18-Dec-2020 13:07
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	18-Dec-2020 13:07
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	18-Dec-2020 13:07
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	18-Dec-2020 13:07
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	18-Dec-2020 13:07
Acetone	1.0	U	0.40	1.0	2.0	ug/L	1	18-Dec-2020 13:07
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	18-Dec-2020 13:07
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	18-Dec-2020 13:07
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	18-Dec-2020 13:07
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	18-Dec-2020 13:07
Bromoform	0.50	U	0.40	0.50	1.0	ug/L	1	18-Dec-2020 13:07
Bromomethane	0.50	U	0.40	0.50	1.0	ug/L	1	18-Dec-2020 13:07
Carbon disulfide	1.0	U	0.60	1.0	2.0	ug/L	1	18-Dec-2020 13:07
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	ug/L	1	18-Dec-2020 13:07
Chlorobenzene	0.50	U	0.30	0.50	1.0	ug/L	1	18-Dec-2020 13:07
Chloroethane	0.50	U	0.30	0.50	1.0	ug/L	1	18-Dec-2020 13:07
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	18-Dec-2020 13:07

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 29-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: Trip Blank
Collection Date: 07-Dec-2020 00:00

ANALYTICAL REPORT
WorkOrder:HS20120479
Lab ID:HS20120479-10
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	18-Dec-2020 13:07
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	18-Dec-2020 13:07
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	18-Dec-2020 13:07
Dibromochloromethane	0.50	U	0.30	0.50	1.0	ug/L	1	18-Dec-2020 13:07
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	18-Dec-2020 13:07
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	18-Dec-2020 13:07
Ethylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	18-Dec-2020 13:07
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	18-Dec-2020 13:07
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	18-Dec-2020 13:07
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	18-Dec-2020 13:07
Methylene chloride	1.0	U	0.40	1.0	2.0	ug/L	1	18-Dec-2020 13:07
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	18-Dec-2020 13:07
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	18-Dec-2020 13:07
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	18-Dec-2020 13:07
o-Xylene	0.50	U	0.30	0.50	1.0	ug/L	1	18-Dec-2020 13:07
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	18-Dec-2020 13:07
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	18-Dec-2020 13:07
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	ug/L	1	18-Dec-2020 13:07
Tetrachloroethene	0.50	U	0.30	0.50	1.0	ug/L	1	18-Dec-2020 13:07
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	18-Dec-2020 13:07
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	18-Dec-2020 13:07
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	18-Dec-2020 13:07
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	18-Dec-2020 13:07
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	ug/L	1	18-Dec-2020 13:07
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	18-Dec-2020 13:07
Surr: 1,2-Dichloroethane-d4	*90.5*			**0**	*81-118*	*%REC*	*1*	*18-Dec-2020 13:07*
Surr: 4-Bromofluorobenzene	*93.0*			**0**	*85-114*	*%REC*	*1*	*18-Dec-2020 13:07*
Surr: Dibromofluoromethane	*89.0*			**0**	*80-119*	*%REC*	*1*	*18-Dec-2020 13:07*
Surr: Toluene-d8	*107*			**0**	*89-112*	*%REC*	*1*	*18-Dec-2020 13:07*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US

Date: 29-Dec-20

Weight / Prep Log

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS20120479

Batch ID: 160930 **Start Date:** 21 Dec 2020 13:00 **End Date:** 21 Dec 2020 17:00
Method: WATER - SW3010A **Prep Code:** 3010A

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS20120479-04		10 (mL)	10 (mL)	1

ALS Houston, US Date: 29-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS20120479

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: 160930 (0)	**Test Name :** METALS BY ICPMS BY SW6020A				**Matrix:** Groundwater	
HS20120479-04	35AWW01_12072020	07 Dec 2020 09:25		21 Dec 2020 17:00	24 Dec 2020 11:21	1
Batch ID: R374913 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Groundwater	
HS20120479-01	35AWW10_12072020	07 Dec 2020 07:50			17 Dec 2020 20:42	1
HS20120479-02	35AWW10_12072020_a	07 Dec 2020 07:50			17 Dec 2020 21:03	1
HS20120479-03	35AWW13_12072020	07 Dec 2020 08:35			17 Dec 2020 15:26	1
HS20120479-04	35AWW01_12072020	07 Dec 2020 09:25			17 Dec 2020 21:24	1
HS20120479-05	35AWW21_12072020	07 Dec 2020 11:00			17 Dec 2020 21:45	1
HS20120479-06	35AWW09_12072020	07 Dec 2020 10:10			17 Dec 2020 16:29	1
HS20120479-07	35AWW22_12072020	07 Dec 2020 11:40			17 Dec 2020 22:06	1
HS20120479-08	35AWW12_12072020	07 Dec 2020 12:20			17 Dec 2020 22:27	1
Batch ID: R375002 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Water	
HS20120479-10	Trip Blank	07 Dec 2020 00:00			18 Dec 2020 13:07	1
Batch ID: R375002 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Groundwater	
HS20120479-06	35AWW09_12072020	07 Dec 2020 10:10			18 Dec 2020 16:59	5
HS20120479-09	35AWW14_12072020	07 Dec 2020 12:30			18 Dec 2020 13:29	1

ALS Houston, US Date: 29-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS20120479

QC BATCH REPORT

Batch ID: 160930 (0) **Instrument: ICPMS05** **Method: METALS BY ICPMS BY SW6020A**

MBLK Sample ID: **MBLK-160930** Units: **mg/L** Analysis Date: **24-Dec-2020 10:49**
Client ID: Run ID: **ICPMS05_375348** SeqNo: **5897738** PrepDate: **21-Dec-2020** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.00100	0.00500								U

LCS Sample ID: **LCS-160930** Units: **mg/L** Analysis Date: **24-Dec-2020 10:51**
Client ID: Run ID: **ICPMS05_375348** SeqNo: **5897739** PrepDate: **21-Dec-2020** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.05162	0.00500	0.05	0	103	84 - 116				

MS Sample ID: **HS20120486-08MS** Units: **mg/L** Analysis Date: **24-Dec-2020 10:59**
Client ID: Run ID: **ICPMS05_375348** SeqNo: **5897743** PrepDate: **21-Dec-2020** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.05393	0.00500	0.05	0.000759	106	84 - 116				

MSD Sample ID: **HS20120486-08MSD** Units: **mg/L** Analysis Date: **24-Dec-2020 11:15**
Client ID: Run ID: **ICPMS05_375348** SeqNo: **5897749** PrepDate: **21-Dec-2020** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.05396	0.00500	0.05	0.000759	106	84 - 116	0.05393	0.0445	20	

PDS Sample ID: **HS20120486-08PDS** Units: **mg/L** Analysis Date: **24-Dec-2020 11:03**
Client ID: Run ID: **ICPMS05_375348** SeqNo: **5897745** PrepDate: **21-Dec-2020** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.1166	0.00500	0.1	0.000759	116	80 - 120				

SD Sample ID: **HS20120486-08SD** Units: **mg/L** Analysis Date: **24-Dec-2020 16:12**
Client ID: Run ID: **ICPMS05_375348** SeqNo: **5898069** PrepDate: **21-Dec-2020** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Arsenic	0.00500	0.0250					0.000759	0	10	U

The following samples were analyzed in this batch: HS20120479-04

ALS Houston, US Date: 29-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS20120479

QC BATCH REPORT

Batch ID: R374913 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MBLK Sample ID: **VBLKW-201217** Units: **ug/L** Analysis Date: **17-Dec-2020 14:02**
Client ID: Run ID: **VOA6_374913** SeqNo: **5887320** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	0.50	1.0								U
1,1,1-Trichloroethane	0.50	1.0								U
1,1,2,2-Tetrachloroethane	0.50	1.0								U
1,1,2-Trichloroethane	0.50	1.0								U
1,1-Dichloroethane	0.50	1.0								U
1,1-Dichloroethene	0.50	1.0								U
1,1-Dichloropropene	0.50	1.0								U
1,2,3-Trichlorobenzene	1.0	1.0								U
1,2,3-Trichloropropane	1.0	1.0								U
1,2,4-Trichlorobenzene	1.0	1.0								U
1,2,4-Trimethylbenzene	1.0	1.0								U
1,2-Dibromo-3-chloropropane	0.50	1.0								U
1,2-Dibromoethane	0.50	1.0								U
1,2-Dichlorobenzene	1.0	1.0								U
1,2-Dichloroethane	0.50	1.0								U
1,2-Dichloropropane	0.50	1.0								U
1,3,5-Trimethylbenzene	0.50	1.0								U
1,3-Dichlorobenzene	1.0	1.0								U
1,3-Dichloropropane	1.0	1.0								U
1,4-Dichlorobenzene	1.0	1.0								U
2,2-Dichloropropane	0.50	1.0								U
2-Butanone	1.0	2.0								U
2-Chlorotoluene	1.0	1.0								U
2-Hexanone	2.0	2.0								U
4-Chlorotoluene	1.0	1.0								U
4-Isopropyltoluene	1.0	1.0								U
4-Methyl-2-pentanone	2.0	2.0								U
Acetone	1.0	2.0								U
Benzene	0.50	1.0								U
Bromobenzene	1.0	1.0								U
Bromochloromethane	0.50	1.0								U
Bromodichloromethane	0.50	1.0								U
Bromoform	0.50	1.0								U
Bromomethane	0.50	1.0								U

ALS Houston, US Date: 29-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS20120479

QC BATCH REPORT

Batch ID: R374913 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MBLK Sample ID: **VBLKW-201217** Units: **ug/L** Analysis Date: **17-Dec-2020 14:02**
Client ID: Run ID: **VOA6_374913** SeqNo: **5887320** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	1.0	2.0								U
Carbon tetrachloride	0.50	1.0								U
Chlorobenzene	0.50	1.0								U
Chloroethane	0.50	1.0								U
Chloroform	0.50	1.0								U
Chloromethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
cis-1,3-Dichloropropene	0.50	1.0								U
Dibromochloromethane	0.50	1.0								U
Dibromomethane	0.50	1.0								U
Dichlorodifluoromethane	0.50	1.0								U
Ethylbenzene	0.50	1.0								U
Hexachlorobutadiene	1.0	1.0								U
Isopropylbenzene	0.50	1.0								U
m,p-Xylene	1.0	2.0								U
Methylene chloride	1.0	2.0								U
Naphthalene	0.50	1.0								U
n-Butylbenzene	1.0	1.0								U
n-Propylbenzene	1.0	1.0								U
o-Xylene	1.0	1.0								U
sec-Butylbenzene	0.50	1.0								U
Styrene	1.0	1.0								U
tert-Butylbenzene	0.50	1.0								U
Tetrachloroethene	0.50	1.0								U
Toluene	0.50	1.0								U
trans-1,2-Dichloroethene	0.50	1.0								U
trans-1,3-Dichloropropene	0.50	1.0								U
Trichloroethene	0.50	1.0								U
Trichlorofluoromethane	0.50	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*44*	*1.0*	*50*	*0*	*88.0*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*47.51*	*1.0*	*50*	*0*	*95.0*	*85 - 114*				
Surr: Dibromofluoromethane	*43.93*	*1.0*	*50*	*0*	*87.9*	*80 - 119*				
Surr: Toluene-d8	*50.67*	*1.0*	*50*	*0*	*101*	*89 - 112*				

ALS Houston, US Date: 29-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS20120479

QC BATCH REPORT

Batch ID: R374913 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

LCS Sample ID: **VLCSW-201217** Units: **ug/L** Analysis Date: **17-Dec-2020 13:20**
Client ID: Run ID: **VOA6_374913** SeqNo: **5887319** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	22.79	1.0	20	0	114	78 - 124				
1,1,1-Trichloroethane	20.92	1.0	20	0	105	74 - 131				
1,1,2,2-Tetrachloroethane	20.17	1.0	20	0	101	71 - 121				
1,1,2-Trichloroethane	21.55	1.0	20	0	108	80 - 119				
1,1-Dichloroethane	21.08	1.0	20	0	105	77 - 125				
1,1-Dichloroethene	18.38	1.0	20	0	91.9	71 - 131				
1,1-Dichloropropene	20.01	1.0	20	0	100	78 - 125				
1,2,3-Trichlorobenzene	26.48	1.0	20	0	132	69 - 129				S
1,2,3-Trichloropropane	20.9	1.0	20	0	104	73 - 122				
1,2,4-Trichlorobenzene	21.82	1.0	20	0	109	69 - 130				
1,2,4-Trimethylbenzene	20.18	1.0	20	0	101	76 - 124				
1,2-Dibromo-3-chloropropane	22.94	1.0	20	0	115	62 - 128				
1,2-Dibromoethane	22.33	1.0	20	0	112	77 - 121				
1,2-Dichlorobenzene	19.88	1.0	20	0	99.4	80 - 119				
1,2-Dichloroethane	22.4	1.0	20	0	112	73 - 128				
1,2-Dichloropropane	22.75	1.0	20	0	114	78 - 122				
1,3,5-Trimethylbenzene	19.23	1.0	20	0	96.2	75 - 124				
1,3-Dichlorobenzene	20.14	1.0	20	0	101	80 - 119				
1,3-Dichloropropane	22.79	1.0	20	0	114	80 - 119				
1,4-Dichlorobenzene	19.76	1.0	20	0	98.8	79 - 118				
2,2-Dichloropropane	21.98	1.0	20	0	110	60 - 139				
2-Butanone	47.85	2.0	40	0	120	56 - 143				
2-Chlorotoluene	20.86	1.0	20	0	104	79 - 122				
2-Hexanone	43.39	2.0	40	0	108	57 - 139				
4-Chlorotoluene	20.41	1.0	20	0	102	78 - 122				
4-Isopropyltoluene	17.79	1.0	20	0	88.9	77 - 127				
4-Methyl-2-pentanone	40.45	2.0	40	0	101	67 - 130				
Acetone	50.48	2.0	40	0	126	39 - 160				
Benzene	21.88	1.0	20	0	109	79 - 120				
Bromobenzene	20.83	1.0	20	0	104	80 - 120				
Bromochloromethane	22.82	1.0	20	0	114	78 - 123				
Bromodichloromethane	23.23	1.0	20	0	116	79 - 125				
Bromoform	22.45	1.0	20	0	112	66 - 130				
Bromomethane	26.18	1.0	20	0	131	53 - 141				

ALS Houston, US Date: 29-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS20120479

QC BATCH REPORT

Batch ID: R374913 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

LCS Sample ID: **VLCSW-201217** Units: **ug/L** Analysis Date: **17-Dec-2020 13:20**
Client ID: Run ID: **VOA6_374913** SeqNo: **5887319** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	43.38	2.0	40	0	108	64 - 133				
Carbon tetrachloride	21.19	1.0	20	0	106	72 - 136				
Chlorobenzene	21.12	1.0	20	0	106	82 - 118				
Chloroethane	20.58	1.0	20	0	103	60 - 138				
Chloroform	21.85	1.0	20	0	109	79 - 124				
Chloromethane	17.73	1.0	20	0	88.6	50 - 139				
cis-1,2-Dichloroethene	22.48	1.0	20	0	112	78 - 123				
cis-1,3-Dichloropropene	22.83	1.0	20	0	114	75 - 124				
Dibromochloromethane	22.02	1.0	20	0	110	74 - 126				
Dibromomethane	23.26	1.0	20	0	116	79 - 123				
Dichlorodifluoromethane	17.23	1.0	20	0	86.2	32 - 152				
Ethylbenzene	21.38	1.0	20	0	107	79 - 121				
Hexachlorobutadiene	20.11	1.0	20	0	101	66 - 134				
Isopropylbenzene	19.78	1.0	20	0	98.9	72 - 131				
m,p-Xylene	41.41	2.0	40	0	104	80 - 121				
Methylene chloride	21.66	2.0	20	0	108	74 - 124				
Naphthalene	24.44	1.0	20	0	122	61 - 128				
n-Butylbenzene	18.62	1.0	20	0	93.1	75 - 128				
n-Propylbenzene	19.49	1.0	20	0	97.5	76 - 126				
o-Xylene	21.18	1.0	20	0	106	78 - 122				
sec-Butylbenzene	17.8	1.0	20	0	89.0	77 - 126				
Styrene	21.51	1.0	20	0	108	78 - 123				
tert-Butylbenzene	17.76	1.0	20	0	88.8	78 - 124				
Tetrachloroethene	19.47	1.0	20	0	97.4	74 - 129				
Toluene	21.6	1.0	20	0	108	80 - 121				
trans-1,2-Dichloroethene	22.25	1.0	20	0	111	75 - 124				
trans-1,3-Dichloropropene	23.81	1.0	20	0	119	73 - 127				
Trichloroethene	21.05	1.0	20	0	105	79 - 123				
Trichlorofluoromethane	17.81	1.0	20	0	89.1	65 - 141				
Vinyl chloride	17.93	1.0	20	0	89.7	58 - 137				
Surr: 1,2-Dichloroethane-d4	*54.7*	*1.0*	*50*	*0*	*109*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*52.81*	*1.0*	*50*	*0*	*106*	*85 - 114*				
Surr: Dibromofluoromethane	*51.83*	*1.0*	*50*	*0*	*104*	*80 - 119*				
Surr: Toluene-d8	*49.75*	*1.0*	*50*	*0*	*99.5*	*89 - 112*				

ALS Houston, US Date: 29-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS20120479

QC BATCH REPORT

Batch ID: R374913 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS20120479-03MS** Units: **ug/L** Analysis Date: **17-Dec-2020 17:33**
Client ID: **35AWW13_12072020** Run ID: **VOA6_374913** SeqNo: **5887329** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	18.1	1.0	20	0	90.5	78 - 124				
1,1,1-Trichloroethane	17.28	1.0	20	0	86.4	74 - 131				
1,1,2,2-Tetrachloroethane	18.29	1.0	20	0	91.4	71 - 121				
1,1,2-Trichloroethane	18.39	1.0	20	0	92.0	80 - 119				
1,1-Dichloroethane	17.56	1.0	20	0	87.8	77 - 125				
1,1-Dichloroethene	15.58	1.0	20	0	77.9	71 - 131				
1,1-Dichloropropene	18.39	1.0	20	0	91.9	78 - 125				
1,2,3-Trichlorobenzene	22.79	1.0	20	0	114	69 - 129				
1,2,3-Trichloropropane	18.29	1.0	20	0	91.4	73 - 122				
1,2,4-Trichlorobenzene	21.24	1.0	20	0	106	69 - 130				
1,2,4-Trimethylbenzene	19.68	1.0	20	0	98.4	76 - 124				
1,2-Dibromo-3-chloropropane	19.53	1.0	20	0	97.6	62 - 128				
1,2-Dibromoethane	18.18	1.0	20	0	90.9	77 - 121				
1,2-Dichlorobenzene	18.88	1.0	20	0	94.4	80 - 119				
1,2-Dichloroethane	18	1.0	20	0	90.0	73 - 128				
1,2-Dichloropropane	18.68	1.0	20	0	93.4	78 - 122				
1,3,5-Trimethylbenzene	19.17	1.0	20	0	95.9	75 - 124				
1,3-Dichlorobenzene	18.98	1.0	20	0	94.9	80 - 119				
1,3-Dichloropropane	18.63	1.0	20	0	93.2	80 - 119				
1,4-Dichlorobenzene	19.44	1.0	20	0	97.2	79 - 118				
2,2-Dichloropropane	17.25	1.0	20	0	86.3	60 - 139				
2-Butanone	32.48	2.0	40	0	81.2	56 - 143				
2-Chlorotoluene	19.6	1.0	20	0	98.0	79 - 122				
2-Hexanone	33.31	2.0	40	0	83.3	57 - 139				
4-Chlorotoluene	19.51	1.0	20	0	97.5	78 - 122				
4-Isopropyltoluene	19.38	1.0	20	0	96.9	77 - 127				
4-Methyl-2-pentanone	35.08	2.0	40	0	87.7	67 - 130				
Acetone	24.02	2.0	40	0	60.1	39 - 160				
Benzene	18.05	1.0	20	0	90.2	79 - 120				
Bromobenzene	18.65	1.0	20	0	93.2	80 - 120				
Bromochloromethane	16.4	1.0	20	0	82.0	78 - 123				
Bromodichloromethane	18.78	1.0	20	0	93.9	79 - 125				
Bromoform	18.74	1.0	20	0	93.7	66 - 130				
Bromomethane	20.62	1.0	20	0	103	53 - 141				

ALS Houston, US Date: 29-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS20120479

QC BATCH REPORT

Batch ID: R374913 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MS Sample ID: **HS20120479-03MS** Units: **ug/L** Analysis Date: **17-Dec-2020 17:33**
Client ID: **35AWW13_12072020** Run ID: **VOA6_374913** SeqNo: **5887329** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	35.27	2.0	40	0	88.2	64 - 133				
Carbon tetrachloride	20.32	1.0	20	0	102	72 - 136				
Chlorobenzene	18.48	1.0	20	0	92.4	82 - 118				
Chloroethane	20.71	1.0	20	0	104	60 - 138				
Chloroform	17.41	1.0	20	0	87.0	79 - 124				
Chloromethane	14.52	1.0	20	0	72.6	50 - 139				
cis-1,2-Dichloroethene	17.7	1.0	20	0	88.5	78 - 123				
cis-1,3-Dichloropropene	18.33	1.0	20	0	91.6	75 - 124				
Dibromochloromethane	18.27	1.0	20	0	91.4	74 - 126				
Dibromomethane	18.46	1.0	20	0	92.3	79 - 123				
Dichlorodifluoromethane	15.03	1.0	20	0	75.1	32 - 152				
Ethylbenzene	19.68	1.0	20	0	98.4	79 - 121				
Hexachlorobutadiene	19.91	1.0	20	0	99.5	66 - 134				
Isopropylbenzene	19.31	1.0	20	0	96.6	72 - 131				
m,p-Xylene	38.27	2.0	40	0	95.7	80 - 121				
Methylene chloride	17.04	2.0	20	0	85.2	74 - 124				
Naphthalene	21.46	1.0	20	0	107	61 - 128				
n-Butylbenzene	20.48	1.0	20	0	102	75 - 128				
n-Propylbenzene	19.44	1.0	20	0	97.2	76 - 126				
o-Xylene	18.99	1.0	20	0	94.9	78 - 122				
sec-Butylbenzene	19.72	1.0	20	0	98.6	77 - 126				
Styrene	18.4	1.0	20	0	92.0	78 - 123				
tert-Butylbenzene	19.55	1.0	20	0	97.8	78 - 124				
Tetrachloroethene	19.54	1.0	20	0	97.7	74 - 129				
Toluene	18.65	1.0	20	0	93.3	80 - 121				
trans-1,2-Dichloroethene	17.64	1.0	20	0	88.2	75 - 124				
trans-1,3-Dichloropropene	17.95	1.0	20	0	89.7	73 - 127				
Trichloroethene	17.8	1.0	20	0	89.0	79 - 123				
Trichlorofluoromethane	15.36	1.0	20	0	76.8	65 - 141				
Vinyl chloride	16.23	1.0	20	0	81.1	58 - 137				
Surr: 1,2-Dichloroethane-d4	*45.22*	*1.0*	*50*	*0*	*90.4*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*50.25*	*1.0*	*50*	*0*	*100*	*85 - 114*				
Surr: Dibromofluoromethane	*44.98*	*1.0*	*50*	*0*	*90.0*	*80 - 119*				
Surr: Toluene-d8	*51.18*	*1.0*	*50*	*0*	*102*	*89 - 112*				

ALS Houston, US Date: 29-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS20120479

QC BATCH REPORT

Batch ID: R374913 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MS Sample ID: **HS20120247-06MS** Units: **ug/L** Analysis Date: **17-Dec-2020 16:50**
Client ID: Run ID: **VOA6_374913** SeqNo: **5887327** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	19.12	1.0	20	0	95.6	78 - 124				
1,1,1-Trichloroethane	18.12	1.0	20	0	90.6	74 - 131				
1,1,2,2-Tetrachloroethane	17.34	1.0	20	0	86.7	71 - 121				
1,1,2-Trichloroethane	18.58	1.0	20	0	92.9	80 - 119				
1,1-Dichloroethane	17.77	1.0	20	0	88.9	77 - 125				
1,1-Dichloroethene	16.77	1.0	20	0	83.9	71 - 131				
1,1-Dichloropropene	19.58	1.0	20	0	97.9	78 - 125				
1,2,3-Trichlorobenzene	16.23	1.0	20	0	81.2	69 - 129				
1,2,3-Trichloropropane	17.15	1.0	20	0	85.8	73 - 122				
1,2,4-Trichlorobenzene	17.46	1.0	20	0	87.3	69 - 130				
1,2,4-Trimethylbenzene	18.82	1.0	20	0	94.1	76 - 124				
1,2-Dibromo-3-chloropropane	16.4	1.0	20	0	82.0	62 - 128				
1,2-Dibromoethane	18.5	1.0	20	0	92.5	77 - 121				
1,2-Dichlorobenzene	17.83	1.0	20	0	89.1	80 - 119				
1,2-Dichloroethane	18.78	1.0	20	0	93.9	73 - 128				
1,2-Dichloropropane	18.87	1.0	20	0	94.4	78 - 122				
1,3,5-Trimethylbenzene	18.37	1.0	20	0	91.8	75 - 124				
1,3-Dichlorobenzene	18.09	1.0	20	0	90.5	80 - 119				
1,3-Dichloropropane	18.92	1.0	20	0	94.6	80 - 119				
1,4-Dichlorobenzene	18.43	1.0	20	0	92.1	79 - 118				
2,2-Dichloropropane	17.98	1.0	20	0	89.9	60 - 139				
2-Butanone	32.47	2.0	40	0	81.2	56 - 143				
2-Chlorotoluene	19.01	1.0	20	0	95.0	79 - 122				
2-Hexanone	32.77	2.0	40	0	81.9	57 - 139				
4-Chlorotoluene	18.33	1.0	20	0	91.6	78 - 122				
4-Isopropyltoluene	18.26	1.0	20	0	91.3	77 - 127				
4-Methyl-2-pentanone	34.06	2.0	40	0	85.2	67 - 130				
Acetone	27.99	2.0	40	0	70.0	39 - 160				
Benzene	19.01	1.0	20	0	95.0	79 - 120				
Bromobenzene	18.06	1.0	20	0	90.3	80 - 120				
Bromochloromethane	17.55	1.0	20	0	87.8	78 - 123				
Bromodichloromethane	18.97	1.0	20	0	94.8	79 - 125				
Bromoform	18.77	1.0	20	0	93.9	66 - 130				
Bromomethane	21.79	1.0	20	0	109	53 - 141				

ALS Houston, US Date: 29-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS20120479

QC BATCH REPORT

Batch ID: R374913 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MS Sample ID: **HS20120247-06MS** Units: **ug/L** Analysis Date: **17-Dec-2020 16:50**
Client ID: Run ID: **VOA6_374913** SeqNo: **5887327** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	36.56	2.0	40	0	91.4	64 - 133				
Carbon tetrachloride	21.1	1.0	20	0	106	72 - 136				
Chlorobenzene	19.45	1.0	20	0	97.3	82 - 118				
Chloroethane	18.31	1.0	20	0	91.6	60 - 138				
Chloroform	17.93	1.0	20	0	89.6	79 - 124				
Chloromethane	14.14	1.0	20	0	70.7	50 - 139				
cis-1,2-Dichloroethene	18.21	1.0	20	0	91.1	78 - 123				
cis-1,3-Dichloropropene	18.49	1.0	20	0	92.5	75 - 124				
Dibromochloromethane	18.64	1.0	20	0	93.2	74 - 126				
Dibromomethane	18.46	1.0	20	0	92.3	79 - 123				
Dichlorodifluoromethane	15.63	1.0	20	0	78.2	32 - 152				
Ethylbenzene	19.57	1.0	20	0	97.8	79 - 121				
Hexachlorobutadiene	16.89	1.0	20	0	84.4	66 - 134				
Isopropylbenzene	19.77	1.0	20	0	98.8	72 - 131				
m,p-Xylene	38.57	2.0	40	0	96.4	80 - 121				
Methylene chloride	17.03	2.0	20	0	85.1	74 - 124				
Naphthalene	14.76	1.0	20	0	73.8	61 - 128				
n-Butylbenzene	18.86	1.0	20	0	94.3	75 - 128				
n-Propylbenzene	18.96	1.0	20	0	94.8	76 - 126				
o-Xylene	19.21	1.0	20	0	96.0	78 - 122				
sec-Butylbenzene	18.5	1.0	20	0	92.5	77 - 126				
Styrene	19.07	1.0	20	0	95.3	78 - 123				
tert-Butylbenzene	18.97	1.0	20	0	94.8	78 - 124				
Tetrachloroethene	21.73	1.0	20	0	109	74 - 129				
Toluene	19.09	1.0	20	0	95.5	80 - 121				
trans-1,2-Dichloroethene	18	1.0	20	0	90.0	75 - 124				
trans-1,3-Dichloropropene	18.76	1.0	20	0	93.8	73 - 127				
Trichloroethene	18.83	1.0	20	0	94.2	79 - 123				
Trichlorofluoromethane	16.72	1.0	20	0	83.6	65 - 141				
Vinyl chloride	16.8	1.0	20	0	84.0	58 - 137				
Surr: 1,2-Dichloroethane-d4	*44.68*	*1.0*	*50*	*0*	*89.4*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*52.87*	*1.0*	*50*	*0*	*106*	*85 - 114*				
Surr: Dibromofluoromethane	*46.94*	*1.0*	*50*	*0*	*93.9*	*80 - 119*				
Surr: Toluene-d8	*50.86*	*1.0*	*50*	*0*	*102*	*89 - 112*				

ALS Houston, US Date: 29-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS20120479

QC BATCH REPORT

Batch ID: R374913 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS20120479-03MSD** Units: **ug/L** Analysis Date: **17-Dec-2020 17:54**
Client ID: **35AWW13_12072020** Run ID: **VOA6_374913** SeqNo: **5887330** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	17.93	1.0	20	0	89.6	78 - 124	18.1	0.974	20	
1,1,1-Trichloroethane	17.43	1.0	20	0	87.2	74 - 131	17.28	0.866	20	
1,1,2,2-Tetrachloroethane	16.32	1.0	20	0	81.6	71 - 121	18.29	11.4	20	
1,1,2-Trichloroethane	18.14	1.0	20	0	90.7	80 - 119	18.39	1.4	20	
1,1-Dichloroethane	16.27	1.0	20	0	81.4	77 - 125	17.56	7.61	20	
1,1-Dichloroethene	14.85	1.0	20	0	74.2	71 - 131	15.58	4.84	20	
1,1-Dichloropropene	18.24	1.0	20	0	91.2	78 - 125	18.39	0.797	20	
1,2,3-Trichlorobenzene	20.79	1.0	20	0	104	69 - 129	22.79	9.21	20	
1,2,3-Trichloropropane	16.9	1.0	20	0	84.5	73 - 122	18.29	7.86	20	
1,2,4-Trichlorobenzene	19.08	1.0	20	0	95.4	69 - 130	21.24	10.7	20	
1,2,4-Trimethylbenzene	17.58	1.0	20	0	87.9	76 - 124	19.68	11.3	20	
1,2-Dibromo-3-chloropropane	16.15	1.0	20	0	80.8	62 - 128	19.53	18.9	20	
1,2-Dibromoethane	17.15	1.0	20	0	85.7	77 - 121	18.18	5.84	20	
1,2-Dichlorobenzene	17.24	1.0	20	0	86.2	80 - 119	18.88	9.05	20	
1,2-Dichloroethane	18	1.0	20	0	90.0	73 - 128	18	0.00849	20	
1,2-Dichloropropane	18.13	1.0	20	0	90.7	78 - 122	18.68	2.98	20	
1,3,5-Trimethylbenzene	17.25	1.0	20	0	86.2	75 - 124	19.17	10.6	20	
1,3-Dichlorobenzene	16.97	1.0	20	0	84.8	80 - 119	18.98	11.2	20	
1,3-Dichloropropane	17.75	1.0	20	0	88.7	80 - 119	18.63	4.85	20	
1,4-Dichlorobenzene	17.26	1.0	20	0	86.3	79 - 118	19.44	11.9	20	
2,2-Dichloropropane	16.72	1.0	20	0	83.6	60 - 139	17.25	3.12	20	
2-Butanone	30.9	2.0	40	0	77.2	56 - 143	32.48	5.01	20	
2-Chlorotoluene	17.81	1.0	20	0	89.1	79 - 122	19.6	9.55	20	
2-Hexanone	32.91	2.0	40	0	82.3	57 - 139	33.31	1.2	20	
4-Chlorotoluene	17.51	1.0	20	0	87.5	78 - 122	19.51	10.8	20	
4-Isopropyltoluene	17.65	1.0	20	0	88.2	77 - 127	19.38	9.39	20	
4-Methyl-2-pentanone	33.86	2.0	40	0	84.7	67 - 130	35.08	3.53	20	
Acetone	24.68	2.0	40	0	61.7	39 - 160	24.02	2.71	20	
Benzene	17.85	1.0	20	0	89.2	79 - 120	18.05	1.11	20	
Bromobenzene	17.11	1.0	20	0	85.5	80 - 120	18.65	8.63	20	
Bromochloromethane	16.33	1.0	20	0	81.6	78 - 123	16.4	0.423	20	
Bromodichloromethane	18.45	1.0	20	0	92.2	79 - 125	18.78	1.77	20	
Bromoform	18.17	1.0	20	0	90.9	66 - 130	18.74	3.07	20	
Bromomethane	18.97	1.0	20	0	94.9	53 - 141	20.62	8.34	20	

ALS Houston, US Date: 29-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS20120479

QC BATCH REPORT

Batch ID: R374913 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS20120479-03MSD** Units: **ug/L** Analysis Date: **17-Dec-2020 17:54**
Client ID: **35AWW13_12072020** Run ID: **VOA6_374913** SeqNo: **5887330** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Carbon disulfide	33.76	2.0	40	0	84.4	64 - 133	35.27	4.37	20	
Carbon tetrachloride	20.03	1.0	20	0	100	72 - 136	20.32	1.43	20	
Chlorobenzene	17.52	1.0	20	0	87.6	82 - 118	18.48	5.38	20	
Chloroethane	18.07	1.0	20	0	90.3	60 - 138	20.71	13.6	20	
Chloroform	16.55	1.0	20	0	82.8	79 - 124	17.41	5.03	20	
Chloromethane	14.01	1.0	20	0	70.1	50 - 139	14.52	3.55	20	
cis-1,2-Dichloroethene	16.79	1.0	20	0	84.0	78 - 123	17.7	5.24	20	
cis-1,3-Dichloropropene	17.63	1.0	20	0	88.2	75 - 124	18.33	3.87	20	
Dibromochloromethane	17.64	1.0	20	0	88.2	74 - 126	18.27	3.56	20	
Dibromomethane	18.41	1.0	20	0	92.1	79 - 123	18.46	0.233	20	
Dichlorodifluoromethane	14.49	1.0	20	0	72.5	32 - 152	15.03	3.64	20	
Ethylbenzene	18.73	1.0	20	0	93.6	79 - 121	19.68	4.95	20	
Hexachlorobutadiene	18.82	1.0	20	0	94.1	66 - 134	19.91	5.64	20	
Isopropylbenzene	18.2	1.0	20	0	91.0	72 - 131	19.31	5.95	20	
m,p-Xylene	36.2	2.0	40	0	90.5	80 - 121	38.27	5.55	20	
Methylene chloride	16	2.0	20	0	80.0	74 - 124	17.04	6.35	20	
Naphthalene	19.1	1.0	20	0	95.5	61 - 128	21.46	11.6	20	
n-Butylbenzene	18.76	1.0	20	0	93.8	75 - 128	20.48	8.78	20	
n-Propylbenzene	18.18	1.0	20	0	90.9	76 - 126	19.44	6.73	20	
o-Xylene	17.61	1.0	20	0	88.0	78 - 122	18.99	7.56	20	
sec-Butylbenzene	18.02	1.0	20	0	90.1	77 - 126	19.72	9	20	
Styrene	18.32	1.0	20	0	91.6	78 - 123	18.4	0.463	20	
tert-Butylbenzene	17.8	1.0	20	0	89.0	78 - 124	19.55	9.38	20	
Tetrachloroethene	18.94	1.0	20	0	94.7	74 - 129	19.54	3.12	20	
Toluene	17.92	1.0	20	0	89.6	80 - 121	18.65	4.02	20	
trans-1,2-Dichloroethene	16.83	1.0	20	0	84.1	75 - 124	17.64	4.71	20	
trans-1,3-Dichloropropene	17.82	1.0	20	0	89.1	73 - 127	17.95	0.721	20	
Trichloroethene	17.53	1.0	20	0	87.7	79 - 123	17.8	1.52	20	
Trichlorofluoromethane	15.28	1.0	20	0	76.4	65 - 141	15.36	0.519	20	
Vinyl chloride	15.66	1.0	20	0	78.3	58 - 137	16.23	3.58	20	
Surr: 1,2-Dichloroethane-d4	*45.19*	*1.0*	*50*	*0*	*90.4*	*81 - 118*	*45.22*	*0.0792*	*20*	
Surr: 4-Bromofluorobenzene	*51.05*	*1.0*	*50*	*0*	*102*	*85 - 114*	*50.25*	*1.59*	*20*	
Surr: Dibromofluoromethane	*44.39*	*1.0*	*50*	*0*	*88.8*	*80 - 119*	*44.98*	*1.32*	*20*	
Surr: Toluene-d8	*50.05*	*1.0*	*50*	*0*	*100*	*89 - 112*	*51.18*	*2.25*	*20*	

ALS Houston, US Date: 29-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS20120479

QC BATCH REPORT

Batch ID: R374913 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MSD Sample ID: **HS20120247-06MSD** Units: **ug/L** Analysis Date: **17-Dec-2020 17:12**
Client ID: Run ID: **VOA6_374913** SeqNo: **5887328** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	18.14	1.0	20	0	90.7	78 - 124	19.12	5.27	20	
1,1,1-Trichloroethane	18.1	1.0	20	0	90.5	74 - 131	18.12	0.149	20	
1,1,2,2-Tetrachloroethane	17.23	1.0	20	0	86.2	71 - 121	17.34	0.653	20	
1,1,2-Trichloroethane	17.84	1.0	20	0	89.2	80 - 119	18.58	4.06	20	
1,1-Dichloroethane	16.78	1.0	20	0	83.9	77 - 125	17.77	5.76	20	
1,1-Dichloroethene	15.24	1.0	20	0	76.2	71 - 131	16.77	9.57	20	
1,1-Dichloropropene	18.65	1.0	20	0	93.3	78 - 125	19.58	4.88	20	
1,2,3-Trichlorobenzene	21.4	1.0	20	0	107	69 - 129	16.23	27.4	20	R
1,2,3-Trichloropropane	16.87	1.0	20	0	84.3	73 - 122	17.15	1.67	20	
1,2,4-Trichlorobenzene	19.52	1.0	20	0	97.6	69 - 130	17.46	11.2	20	
1,2,4-Trimethylbenzene	18.65	1.0	20	0	93.3	76 - 124	18.82	0.906	20	
1,2-Dibromo-3-chloropropane	17.29	1.0	20	0	86.5	62 - 128	16.4	5.29	20	
1,2-Dibromoethane	17.85	1.0	20	0	89.3	77 - 121	18.5	3.54	20	
1,2-Dichlorobenzene	17.76	1.0	20	0	88.8	80 - 119	17.83	0.357	20	
1,2-Dichloroethane	18.26	1.0	20	0	91.3	73 - 128	18.78	2.82	20	
1,2-Dichloropropane	18.02	1.0	20	0	90.1	78 - 122	18.87	4.62	20	
1,3,5-Trimethylbenzene	18.08	1.0	20	0	90.4	75 - 124	18.37	1.57	20	
1,3-Dichlorobenzene	17.87	1.0	20	0	89.4	80 - 119	18.09	1.24	20	
1,3-Dichloropropane	18.21	1.0	20	0	91.0	80 - 119	18.92	3.81	20	
1,4-Dichlorobenzene	18.32	1.0	20	0	91.6	79 - 118	18.43	0.569	20	
2,2-Dichloropropane	17.87	1.0	20	0	89.4	60 - 139	17.98	0.604	20	
2-Butanone	33.93	2.0	40	0	84.8	56 - 143	32.47	4.42	20	
2-Chlorotoluene	18.63	1.0	20	0	93.1	79 - 122	19.01	2.02	20	
2-Hexanone	33.22	2.0	40	0	83.0	57 - 139	32.77	1.36	20	
4-Chlorotoluene	18.52	1.0	20	0	92.6	78 - 122	18.33	1.06	20	
4-Isopropyltoluene	18.39	1.0	20	0	92.0	77 - 127	18.26	0.699	20	
4-Methyl-2-pentanone	33.98	2.0	40	0	84.9	67 - 130	34.06	0.241	20	
Acetone	26.75	2.0	40	0	66.9	39 - 160	27.99	4.55	20	
Benzene	18.07	1.0	20	0	90.4	79 - 120	19.01	5.05	20	
Bromobenzene	17.11	1.0	20	0	85.6	80 - 120	18.06	5.37	20	
Bromochloromethane	16.63	1.0	20	0	83.2	78 - 123	17.55	5.38	20	
Bromodichloromethane	18.75	1.0	20	0	93.8	79 - 125	18.97	1.14	20	
Bromoform	17.47	1.0	20	0	87.3	66 - 130	18.77	7.19	20	
Bromomethane	20.66	1.0	20	0	103	53 - 141	21.79	5.31	20	

ALS Houston, US Date: 29-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS20120479

QC BATCH REPORT

Batch ID: R374913 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MSD Sample ID: **HS20120247-06MSD** Units: **ug/L** Analysis Date: **17-Dec-2020 17:12**
Client ID: Run ID: **VOA6_374913** SeqNo: **5887328** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Carbon disulfide	35.85	2.0	40	0	89.6	64 - 133	36.56	1.94	20	
Carbon tetrachloride	20.74	1.0	20	0	104	72 - 136	21.1	1.73	20	
Chlorobenzene	18.03	1.0	20	0	90.2	82 - 118	19.45	7.59	20	
Chloroethane	18.64	1.0	20	0	93.2	60 - 138	18.31	1.81	20	
Chloroform	16.97	1.0	20	0	84.9	79 - 124	17.93	5.5	20	
Chloromethane	14.73	1.0	20	0	73.7	50 - 139	14.14	4.1	20	
cis-1,2-Dichloroethene	17.4	1.0	20	0	87.0	78 - 123	18.21	4.54	20	
cis-1,3-Dichloropropene	17.65	1.0	20	0	88.3	75 - 124	18.49	4.64	20	
Dibromochloromethane	17.69	1.0	20	0	88.4	74 - 126	18.64	5.24	20	
Dibromomethane	18.45	1.0	20	0	92.2	79 - 123	18.46	0.0696	20	
Dichlorodifluoromethane	15.57	1.0	20	0	77.8	32 - 152	15.63	0.421	20	
Ethylbenzene	19.27	1.0	20	0	96.4	79 - 121	19.57	1.52	20	
Hexachlorobutadiene	17.69	1.0	20	0	88.4	66 - 134	16.89	4.65	20	
Isopropylbenzene	19.15	1.0	20	0	95.7	72 - 131	19.77	3.18	20	
m,p-Xylene	37.21	2.0	40	0	93.0	80 - 121	38.57	3.6	20	
Methylene chloride	16.83	2.0	20	0	84.2	74 - 124	17.03	1.13	20	
Naphthalene	19.21	1.0	20	0	96.0	61 - 128	14.76	26.2	20	R
n-Butylbenzene	19.35	1.0	20	0	96.7	75 - 128	18.86	2.57	20	
n-Propylbenzene	19.36	1.0	20	0	96.8	76 - 126	18.96	2.13	20	
o-Xylene	17.94	1.0	20	0	89.7	78 - 122	19.21	6.81	20	
sec-Butylbenzene	18.67	1.0	20	0	93.4	77 - 126	18.5	0.932	20	
Styrene	18.19	1.0	20	0	91.0	78 - 123	19.07	4.69	20	
tert-Butylbenzene	18.63	1.0	20	0	93.2	78 - 124	18.97	1.78	20	
Tetrachloroethene	20.07	1.0	20	0	100	74 - 129	21.73	7.96	20	
Toluene	18.31	1.0	20	0	91.5	80 - 121	19.09	4.18	20	
trans-1,2-Dichloroethene	17.5	1.0	20	0	87.5	75 - 124	18	2.86	20	
trans-1,3-Dichloropropene	18.11	1.0	20	0	90.6	73 - 127	18.76	3.5	20	
Trichloroethene	17.6	1.0	20	0	88.0	79 - 123	18.83	6.76	20	
Trichlorofluoromethane	15.81	1.0	20	0	79.1	65 - 141	16.72	5.61	20	
Vinyl chloride	16.15	1.0	20	0	80.7	58 - 137	16.8	3.99	20	
Surr: 1,2-Dichloroethane-d4	*43.71*	*1.0*	*50*	*0*	*87.4*	*81 - 118*	*44.68*	*2.2*	*20*	
Surr: 4-Bromofluorobenzene	*50.74*	*1.0*	*50*	*0*	*101*	*85 - 114*	*52.87*	*4.11*	*20*	
Surr: Dibromofluoromethane	*44.23*	*1.0*	*50*	*0*	*88.5*	*80 - 119*	*46.94*	*5.95*	*20*	
Surr: Toluene-d8	*49.6*	*1.0*	*50*	*0*	*99.2*	*89 - 112*	*50.86*	*2.51*	*20*	

ALS Houston, US Date: 29-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS20120479

QC BATCH REPORT

Batch ID: R374913 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

The following samples were analyzed in this batch:

HS20120479-01	HS20120479-02	HS20120479-03	HS20120479-04
HS20120479-05	HS20120479-06	HS20120479-07	HS20120479-08

ALS Houston, US Date: 29-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS20120479

QC BATCH REPORT

Batch ID: R375002 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MBLK Sample ID: **VBLKW-201218** Units: **ug/L** Analysis Date: **18-Dec-2020 12:46**
Client ID: Run ID: **VOA6_375002** SeqNo: **5889270** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	0.50	1.0								U
1,1,1-Trichloroethane	0.50	1.0								U
1,1,2,2-Tetrachloroethane	0.50	1.0								U
1,1,2-Trichloroethane	0.50	1.0								U
1,1-Dichloroethane	0.50	1.0								U
1,1-Dichloroethene	0.50	1.0								U
1,1-Dichloropropene	0.50	1.0								U
1,2,3-Trichlorobenzene	1.0	1.0								U
1,2,3-Trichloropropane	1.0	1.0								U
1,2,4-Trichlorobenzene	1.0	1.0								U
1,2,4-Trimethylbenzene	1.0	1.0								U
1,2-Dibromo-3-chloropropane	0.50	1.0								U
1,2-Dibromoethane	0.50	1.0								U
1,2-Dichlorobenzene	1.0	1.0								U
1,2-Dichloroethane	0.50	1.0								U
1,2-Dichloropropane	0.50	1.0								U
1,3,5-Trimethylbenzene	0.50	1.0								U
1,3-Dichlorobenzene	1.0	1.0								U
1,3-Dichloropropane	1.0	1.0								U
1,4-Dichlorobenzene	1.0	1.0								U
2,2-Dichloropropane	0.50	1.0								U
2-Butanone	1.0	2.0								U
2-Chlorotoluene	1.0	1.0								U
2-Hexanone	2.0	2.0								U
4-Chlorotoluene	1.0	1.0								U
4-Isopropyltoluene	1.0	1.0								U
4-Methyl-2-pentanone	2.0	2.0								U
Acetone	1.0	2.0								U
Benzene	0.50	1.0								U
Bromobenzene	1.0	1.0								U
Bromochloromethane	0.50	1.0								U
Bromodichloromethane	0.50	1.0								U
Bromoform	0.50	1.0								U
Bromomethane	0.50	1.0								U

ALS Houston, US Date: 29-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS20120479

QC BATCH REPORT

Batch ID: R375002 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MBLK Sample ID: **VBLKW-201218** Units: **ug/L** Analysis Date: **18-Dec-2020 12:46**
Client ID: Run ID: **VOA6_375002** SeqNo: **5889270** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	1.0	2.0								U
Carbon tetrachloride	0.50	1.0								U
Chlorobenzene	0.50	1.0								U
Chloroethane	0.50	1.0								U
Chloroform	0.50	1.0								U
Chloromethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
cis-1,3-Dichloropropene	0.50	1.0								U
Dibromochloromethane	0.50	1.0								U
Dibromomethane	0.50	1.0								U
Dichlorodifluoromethane	0.50	1.0								U
Ethylbenzene	0.50	1.0								U
Hexachlorobutadiene	1.0	1.0								U
Isopropylbenzene	1.0	1.0								U
m,p-Xylene	1.0	2.0								U
Methylene chloride	1.0	2.0								U
Naphthalene	0.50	1.0								U
n-Butylbenzene	1.0	1.0								U
n-Propylbenzene	1.0	1.0								U
o-Xylene	1.0	1.0								U
sec-Butylbenzene	0.50	1.0								U
Styrene	1.0	1.0								U
tert-Butylbenzene	0.50	1.0								U
Tetrachloroethene	0.50	1.0								U
Toluene	0.50	1.0								U
trans-1,2-Dichloroethene	0.50	1.0								U
trans-1,3-Dichloropropene	0.50	1.0								U
Trichloroethene	0.50	1.0								U
Trichlorofluoromethane	0.50	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*44.65*	*1.0*	*50*	*0*	*89.3*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*46.53*	*1.0*	*50*	*0*	*93.1*	*85 - 114*				
Surr: Dibromofluoromethane	*43.66*	*1.0*	*50*	*0*	*87.3*	*80 - 119*				
Surr: Toluene-d8	*51.01*	*1.0*	*50*	*0*	*102*	*89 - 112*				

ALS Houston, US Date: 29-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS20120479

QC BATCH REPORT

Batch ID: R375002 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

LCS Sample ID: **VLCSW-201218** Units: **ug/L** Analysis Date: **18-Dec-2020 12:04**
Client ID: Run ID: **VOA6_375002** SeqNo: **5889269** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	19.81	1.0	20	0	99.0	78 - 124				
1,1,1-Trichloroethane	20.86	1.0	20	0	104	74 - 131				
1,1,2,2-Tetrachloroethane	20.55	1.0	20	0	103	71 - 121				
1,1,2-Trichloroethane	20.74	1.0	20	0	104	80 - 119				
1,1-Dichloroethane	21.36	1.0	20	0	107	77 - 125				
1,1-Dichloroethene	19.61	1.0	20	0	98.1	71 - 131				
1,1-Dichloropropene	20.92	1.0	20	0	105	78 - 125				
1,2,3-Trichlorobenzene	26.4	1.0	20	0	132	69 - 129				S
1,2,3-Trichloropropane	20.56	1.0	20	0	103	73 - 122				
1,2,4-Trichlorobenzene	22.93	1.0	20	0	115	69 - 130				
1,2,4-Trimethylbenzene	19.93	1.0	20	0	99.6	76 - 124				
1,2-Dibromo-3-chloropropane	22.97	1.0	20	0	115	62 - 128				
1,2-Dibromoethane	21.46	1.0	20	0	107	77 - 121				
1,2-Dichlorobenzene	19.45	1.0	20	0	97.3	80 - 119				
1,2-Dichloroethane	21.92	1.0	20	0	110	73 - 128				
1,2-Dichloropropane	21.3	1.0	20	0	106	78 - 122				
1,3,5-Trimethylbenzene	18.94	1.0	20	0	94.7	75 - 124				
1,3-Dichlorobenzene	19.32	1.0	20	0	96.6	80 - 119				
1,3-Dichloropropane	21.36	1.0	20	0	107	80 - 119				
1,4-Dichlorobenzene	19.81	1.0	20	0	99.1	79 - 118				
2,2-Dichloropropane	21.66	1.0	20	0	108	60 - 139				
2-Butanone	47.29	2.0	40	0	118	56 - 143				
2-Chlorotoluene	20.21	1.0	20	0	101	79 - 122				
2-Hexanone	40.39	2.0	40	0	101	57 - 139				
4-Chlorotoluene	19.55	1.0	20	0	97.8	78 - 122				
4-Isopropyltoluene	18.73	1.0	20	0	93.7	77 - 127				
4-Methyl-2-pentanone	41.18	2.0	40	0	103	67 - 130				
Acetone	44.38	2.0	40	0	111	39 - 160				
Benzene	21	1.0	20	0	105	79 - 120				
Bromobenzene	20	1.0	20	0	100.0	80 - 120				
Bromochloromethane	20.27	1.0	20	0	101	78 - 123				
Bromodichloromethane	22.16	1.0	20	0	111	79 - 125				
Bromoform	22.03	1.0	20	0	110	66 - 130				
Bromomethane	21.82	1.0	20	0	109	53 - 141				

ALS Houston, US Date: 29-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS20120479

QC BATCH REPORT

Batch ID: R375002 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

LCS Sample ID: **VLCSW-201218** Units: **ug/L** Analysis Date: **18-Dec-2020 12:04**
Client ID: Run ID: **VOA6_375002** SeqNo: **5889269** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	46.65	2.0	40	0	117	64 - 133				
Carbon tetrachloride	21.32	1.0	20	0	107	72 - 136				
Chlorobenzene	19.89	1.0	20	0	99.5	82 - 118				
Chloroethane	21.78	1.0	20	0	109	60 - 138				
Chloroform	21.05	1.0	20	0	105	79 - 124				
Chloromethane	16.18	1.0	20	0	80.9	50 - 139				
cis-1,2-Dichloroethene	21.03	1.0	20	0	105	78 - 123				
cis-1,3-Dichloropropene	21.64	1.0	20	0	108	75 - 124				
Dibromochloromethane	20.74	1.0	20	0	104	74 - 126				
Dibromomethane	21.79	1.0	20	0	109	79 - 123				
Dichlorodifluoromethane	20.23	1.0	20	0	101	32 - 152				
Ethylbenzene	19.56	1.0	20	0	97.8	79 - 121				
Hexachlorobutadiene	23.8	1.0	20	0	119	66 - 134				
Isopropylbenzene	18.76	1.0	20	0	93.8	72 - 131				
m,p-Xylene	39.11	2.0	40	0	97.8	80 - 121				
Methylene chloride	20.85	2.0	20	0	104	74 - 124				
Naphthalene	23.83	1.0	20	0	119	61 - 128				
n-Butylbenzene	20.43	1.0	20	0	102	75 - 128				
n-Propylbenzene	19.63	1.0	20	0	98.2	76 - 126				
o-Xylene	19.15	1.0	20	0	95.7	78 - 122				
sec-Butylbenzene	18.94	1.0	20	0	94.7	77 - 126				
Styrene	20.16	1.0	20	0	101	78 - 123				
tert-Butylbenzene	18.48	1.0	20	0	92.4	78 - 124				
Tetrachloroethene	19.34	1.0	20	0	96.7	74 - 129				
Toluene	20.4	1.0	20	0	102	80 - 121				
trans-1,2-Dichloroethene	21.25	1.0	20	0	106	75 - 124				
trans-1,3-Dichloropropene	21.36	1.0	20	0	107	73 - 127				
Trichloroethene	20.17	1.0	20	0	101	79 - 123				
Trichlorofluoromethane	19.51	1.0	20	0	97.6	65 - 141				
Vinyl chloride	20.21	1.0	20	0	101	58 - 137				
Surr: 1,2-Dichloroethane-d4	*51.78*	*1.0*	*50*	*0*	*104*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*50.21*	*1.0*	*50*	*0*	*100*	*85 - 114*				
Surr: Dibromofluoromethane	*50.02*	*1.0*	*50*	*0*	*100*	*80 - 119*				
Surr: Toluene-d8	*48.63*	*1.0*	*50*	*0*	*97.3*	*89 - 112*				

ALS Houston, US Date: 29-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS20120479

QC BATCH REPORT

Batch ID: R375002 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MS Sample ID: **HS20120486-08MS** Units: **ug/L** Analysis Date: **18-Dec-2020 16:17**
Client ID: Run ID: **VOA6_375002** SeqNo: **5889280** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	19.48	1.0	20	0	97.4	78 - 124				
1,1,1-Trichloroethane	18.94	1.0	20	0	94.7	74 - 131				
1,1,2,2-Tetrachloroethane	18.78	1.0	20	0	93.9	71 - 121				
1,1,2-Trichloroethane	19.24	1.0	20	0	96.2	80 - 119				
1,1-Dichloroethane	17.21	1.0	20	0	86.1	77 - 125				
1,1-Dichloroethene	17.05	1.0	20	0	85.3	71 - 131				
1,1-Dichloropropene	19.6	1.0	20	0	98.0	78 - 125				
1,2,3-Trichlorobenzene	18.62	1.0	20	0	93.1	69 - 129				
1,2,3-Trichloropropane	18.48	1.0	20	0	92.4	73 - 122				
1,2,4-Trichlorobenzene	19.42	1.0	20	0	97.1	69 - 130				
1,2,4-Trimethylbenzene	19.94	1.0	20	0	99.7	76 - 124				
1,2-Dibromo-3-chloropropane	17.29	1.0	20	0	86.5	62 - 128				
1,2-Dibromoethane	18.71	1.0	20	0	93.5	77 - 121				
1,2-Dichlorobenzene	18.64	1.0	20	0	93.2	80 - 119				
1,2-Dichloroethane	18.85	1.0	20	0	94.2	73 - 128				
1,2-Dichloropropane	18.98	1.0	20	0	94.9	78 - 122				
1,3,5-Trimethylbenzene	19.53	1.0	20	0	97.6	75 - 124				
1,3-Dichlorobenzene	19.08	1.0	20	0	95.4	80 - 119				
1,3-Dichloropropane	19.4	1.0	20	0	97.0	80 - 119				
1,4-Dichlorobenzene	19.01	1.0	20	0	95.0	79 - 118				
2,2-Dichloropropane	18.63	1.0	20	0	93.1	60 - 139				
2-Butanone	29.98	2.0	40	0	75.0	56 - 143				
2-Chlorotoluene	20.93	1.0	20	0	105	79 - 122				
2-Hexanone	36.4	2.0	40	0	91.0	57 - 139				
4-Chlorotoluene	20.53	1.0	20	0	103	78 - 122				
4-Isopropyltoluene	19.8	1.0	20	0	99.0	77 - 127				
4-Methyl-2-pentanone	34.28	2.0	40	0	85.7	67 - 130				
Acetone	27.15	2.0	40	0	67.9	39 - 160				
Benzene	19.21	1.0	20	0	96.0	79 - 120				
Bromobenzene	19	1.0	20	0	95.0	80 - 120				
Bromochloromethane	17.93	1.0	20	0	89.7	78 - 123				
Bromodichloromethane	18.82	1.0	20	0	94.1	79 - 125				
Bromoform	18.94	1.0	20	0	94.7	66 - 130				
Bromomethane	19.97	1.0	20	0	99.9	53 - 141				

ALS Houston, US Date: 29-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS20120479

QC BATCH REPORT

Batch ID: R375002 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MS Sample ID: **HS20120486-08MS** Units: **ug/L** Analysis Date: **18-Dec-2020 16:17**
Client ID: Run ID: **VOA6_375002** SeqNo: **5889280** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	36.42	2.0	40	0	91.0	64 - 133				
Carbon tetrachloride	21.49	1.0	20	0	107	72 - 136				
Chlorobenzene	19.39	1.0	20	0	97.0	82 - 118				
Chloroethane	17.78	1.0	20	0	88.9	60 - 138				
Chloroform	17.61	1.0	20	0	88.0	79 - 124				
Chloromethane	13.56	1.0	20	0	67.8	50 - 139				
cis-1,2-Dichloroethene	17.98	1.0	20	0	89.9	78 - 123				
cis-1,3-Dichloropropene	18.7	1.0	20	0	93.5	75 - 124				
Dibromochloromethane	19.09	1.0	20	0	95.4	74 - 126				
Dibromomethane	19.05	1.0	20	0	95.3	79 - 123				
Dichlorodifluoromethane	15.64	1.0	20	0	78.2	32 - 152				
Ethylbenzene	20.83	1.0	20	0	104	79 - 121				
Hexachlorobutadiene	23.56	1.0	20	0	118	66 - 134				
Isopropylbenzene	20.69	1.0	20	0	103	72 - 131				
m,p-Xylene	41.04	2.0	40	0	103	80 - 121				
Methylene chloride	17.14	2.0	20	0	85.7	74 - 124				
Naphthalene	17.17	1.0	20	0	85.9	61 - 128				
n-Butylbenzene	20.83	1.0	20	0	104	75 - 128				
n-Propylbenzene	20.62	1.0	20	0	103	76 - 126				
o-Xylene	19.53	1.0	20	0	97.7	78 - 122				
sec-Butylbenzene	19.9	1.0	20	0	99.5	77 - 126				
Styrene	19.52	1.0	20	0	97.6	78 - 123				
tert-Butylbenzene	20.1	1.0	20	0	101	78 - 124				
Tetrachloroethene	21.83	1.0	20	0	109	74 - 129				
Toluene	20.21	1.0	20	0	101	80 - 121				
trans-1,2-Dichloroethene	18.57	1.0	20	0	92.8	75 - 124				
trans-1,3-Dichloropropene	19.74	1.0	20	0	98.7	73 - 127				
Trichloroethene	21.45	1.0	20	0	107	79 - 123				
Trichlorofluoromethane	17.38	1.0	20	0	86.9	65 - 141				
Vinyl chloride	16.83	1.0	20	0	84.2	58 - 137				
Surr: 1,2-Dichloroethane-d4	*45.55*	*1.0*	*50*	*0*	*91.1*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*51.25*	*1.0*	*50*	*0*	*103*	*85 - 114*				
Surr: Dibromofluoromethane	*44.43*	*1.0*	*50*	*0*	*88.9*	*80 - 119*				
Surr: Toluene-d8	*51.62*	*1.0*	*50*	*0*	*103*	*89 - 112*				

ALS Houston, US Date: 29-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS20120479

QC BATCH REPORT

Batch ID: R375002 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MSD Sample ID: **HS20120486-08MSD** Units: **ug/L** Analysis Date: **18-Dec-2020 16:38**
Client ID: Run ID: **VOA6_375002** SeqNo: **5889281** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	18.72	1.0	20	0	93.6	78 - 124	19.48	3.97	20	
1,1,1-Trichloroethane	18.47	1.0	20	0	92.4	74 - 131	18.94	2.48	20	
1,1,2,2-Tetrachloroethane	19.84	1.0	20	0	99.2	71 - 121	18.78	5.5	20	
1,1,2-Trichloroethane	19.16	1.0	20	0	95.8	80 - 119	19.24	0.4	20	
1,1-Dichloroethane	16.88	1.0	20	0	84.4	77 - 125	17.21	1.97	20	
1,1-Dichloroethene	17.08	1.0	20	0	85.4	71 - 131	17.05	0.15	20	
1,1-Dichloropropene	19.57	1.0	20	0	97.9	78 - 125	19.6	0.13	20	
1,2,3-Trichlorobenzene	19.83	1.0	20	0	99.2	69 - 129	18.62	6.32	20	
1,2,3-Trichloropropane	19.16	1.0	20	0	95.8	73 - 122	18.48	3.61	20	
1,2,4-Trichlorobenzene	20.3	1.0	20	0	101	69 - 130	19.42	4.44	20	
1,2,4-Trimethylbenzene	19.84	1.0	20	0	99.2	76 - 124	19.94	0.479	20	
1,2-Dibromo-3-chloropropane	20.24	1.0	20	0	101	62 - 128	17.29	15.7	20	
1,2-Dibromoethane	19.02	1.0	20	0	95.1	77 - 121	18.71	1.69	20	
1,2-Dichlorobenzene	19.14	1.0	20	0	95.7	80 - 119	18.64	2.66	20	
1,2-Dichloroethane	18.71	1.0	20	0	93.5	73 - 128	18.85	0.74	20	
1,2-Dichloropropane	18.87	1.0	20	0	94.3	78 - 122	18.98	0.566	20	
1,3,5-Trimethylbenzene	19.2	1.0	20	0	96.0	75 - 124	19.53	1.7	20	
1,3-Dichlorobenzene	18.98	1.0	20	0	94.9	80 - 119	19.08	0.502	20	
1,3-Dichloropropane	19.29	1.0	20	0	96.4	80 - 119	19.4	0.603	20	
1,4-Dichlorobenzene	19.05	1.0	20	0	95.2	79 - 118	19.01	0.23	20	
2,2-Dichloropropane	18.58	1.0	20	0	92.9	60 - 139	18.63	0.263	20	
2-Butanone	34.24	2.0	40	0	85.6	56 - 143	29.98	13.3	20	
2-Chlorotoluene	20.46	1.0	20	0	102	79 - 122	20.93	2.28	20	
2-Hexanone	35.02	2.0	40	0	87.6	57 - 139	36.4	3.84	20	
4-Chlorotoluene	20.2	1.0	20	0	101	78 - 122	20.53	1.63	20	
4-Isopropyltoluene	18.35	1.0	20	0	91.7	77 - 127	19.8	7.59	20	
4-Methyl-2-pentanone	34.66	2.0	40	0	86.7	67 - 130	34.28	1.12	20	
Acetone	28.74	2.0	40	0	71.8	39 - 160	27.15	5.68	20	
Benzene	18.85	1.0	20	0	94.2	79 - 120	19.21	1.9	20	
Bromobenzene	19.33	1.0	20	0	96.7	80 - 120	19	1.73	20	
Bromochloromethane	17.48	1.0	20	0	87.4	78 - 123	17.93	2.55	20	
Bromodichloromethane	19.78	1.0	20	0	98.9	79 - 125	18.82	5	20	
Bromoform	18.76	1.0	20	0	93.8	66 - 130	18.94	0.975	20	
Bromomethane	19.22	1.0	20	0	96.1	53 - 141	19.97	3.85	20	

ALS Houston, US Date: 29-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS20120479

QC BATCH REPORT

Batch ID: R375002 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MSD Sample ID: **HS20120486-08MSD** Units: **ug/L** Analysis Date: **18-Dec-2020 16:38**
Client ID: Run ID: **VOA6_375002** SeqNo: **5889281** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Carbon disulfide	35.75	2.0	40	0	89.4	64 - 133	36.42	1.85	20	
Carbon tetrachloride	21.23	1.0	20	0	106	72 - 136	21.49	1.2	20	
Chlorobenzene	18.38	1.0	20	0	91.9	82 - 118	19.39	5.39	20	
Chloroethane	17.92	1.0	20	0	89.6	60 - 138	17.78	0.797	20	
Chloroform	17.45	1.0	20	0	87.2	79 - 124	17.61	0.907	20	
Chloromethane	13.21	1.0	20	0	66.1	50 - 139	13.56	2.58	20	
cis-1,2-Dichloroethene	17.85	1.0	20	0	89.3	78 - 123	17.98	0.736	20	
cis-1,3-Dichloropropene	18.68	1.0	20	0	93.4	75 - 124	18.7	0.104	20	
Dibromochloromethane	18.34	1.0	20	0	91.7	74 - 126	19.09	4.03	20	
Dibromomethane	19.94	1.0	20	0	99.7	79 - 123	19.05	4.55	20	
Dichlorodifluoromethane	15.93	1.0	20	0	79.7	32 - 152	15.64	1.82	20	
Ethylbenzene	19.75	1.0	20	0	98.7	79 - 121	20.83	5.35	20	
Hexachlorobutadiene	20.2	1.0	20	0	101	66 - 134	23.56	15.4	20	
Isopropylbenzene	19.26	1.0	20	0	96.3	72 - 131	20.69	7.15	20	
m,p-Xylene	38.55	2.0	40	0	96.4	80 - 121	41.04	6.26	20	
Methylene chloride	17.13	2.0	20	0	85.6	74 - 124	17.14	0.0602	20	
Naphthalene	20.84	1.0	20	0	104	61 - 128	17.17	19.3	20	
n-Butylbenzene	19.66	1.0	20	0	98.3	75 - 128	20.83	5.77	20	
n-Propylbenzene	19.99	1.0	20	0	100.0	76 - 126	20.62	3.1	20	
o-Xylene	18.55	1.0	20	0	92.8	78 - 122	19.53	5.17	20	
sec-Butylbenzene	18.88	1.0	20	0	94.4	77 - 126	19.9	5.26	20	
Styrene	18.88	1.0	20	0	94.4	78 - 123	19.52	3.35	20	
tert-Butylbenzene	19.37	1.0	20	0	96.8	78 - 124	20.1	3.72	20	
Tetrachloroethene	20.02	1.0	20	0	100	74 - 129	21.83	8.68	20	
Toluene	19.29	1.0	20	0	96.5	80 - 121	20.21	4.63	20	
trans-1,2-Dichloroethene	17.8	1.0	20	0	89.0	75 - 124	18.57	4.2	20	
trans-1,3-Dichloropropene	18.73	1.0	20	0	93.7	73 - 127	19.74	5.26	20	
Trichloroethene	20.05	1.0	20	0	100	79 - 123	21.45	6.72	20	
Trichlorofluoromethane	17.52	1.0	20	0	87.6	65 - 141	17.38	0.807	20	
Vinyl chloride	17.17	1.0	20	0	85.8	58 - 137	16.83	1.97	20	
Surr: 1,2-Dichloroethane-d4	*44.36*	*1.0*	*50*	*0*	*88.7*	*81 - 118*	*45.55*	*2.64*	*20*	
Surr: 4-Bromofluorobenzene	*50.22*	*1.0*	*50*	*0*	*100*	*85 - 114*	*51.25*	*2.03*	*20*	
Surr: Dibromofluoromethane	*45.19*	*1.0*	*50*	*0*	*90.4*	*80 - 119*	*44.43*	*1.7*	*20*	
Surr: Toluene-d8	*50.42*	*1.0*	*50*	*0*	*101*	*89 - 112*	*51.62*	*2.35*	*20*	

ALS Houston, US Date: 29-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS20120479

QC BATCH REPORT

Batch ID: R375002 (0)	Instrument: VOA6	Method: VOLATILES ORGANICS BY METHOD 8260C

The following samples were analyzed in this batch: HS20120479-06 HS20120479-09 HS20120479-10

ALS Houston, US Date: 29-Dec-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: **HS20120479**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL/SDL

Acronym	Description
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitaion Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

ALS Houston, US Date: 29-Dec-20

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	20-030-0	26-Mar-2021
California	2919, 2020-2021	30-Apr-2021
Dept of Defense	PJLA L20-507	22-Dec-2021
Florida	E87611-30-07/01/2020	30-Jun-2021
Illinois	2000322020-4	09-May-2021
Kansas	E-10352 2020-2021	31-Jul-2021
Kentucky	123043, 2020-2021	30-Apr-2021
Louisiana	03087, 2020-2021	30-Jun-2021
North Carolina	624-2020	31-Dec-2020
North Dakota	R-193 2020-2021	30-Apr-2021
Oklahoma	2020-165	31-Aug-2021
Texas	T104704231-20-26	30-Apr-2021

ALS Houston, US Date: 29-Dec-20

Sample Receipt Checklist

Work Order ID: HS20120479 **Date/Time Received:** **09-Dec-2020 10:50**

Client Name: Bhate Environmental **Received by:** **Jared R. Makan**

Completed By:	*/S/ Paresh M. Giga*	09-Dec-2020 17:32	**Reviewed by:**	*/S/ RJ Modashia*	10-Dec-2020 07:35
	eSignature	Date/Time		eSignature	Date/Time

Matrices: **GW/Water** Carrier name: **FedEx**

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐	
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑	
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	Yes ☐	No ☐	Not Present ☑	
Chain of custody present?	Yes ☑	No ☐	2 Page(s)	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	COC IDs:None	
Samplers name present on COC?	Yes ☐	No ☑		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐		

Temperature(s)/Thermometer(s):	3.3C U/C	IR31
Cooler(s)/Kit(s):	6141	
Date/Time sample(s) sent to storage:	12/9/2020 17:55	

Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:			

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

01072210

bhate
ENVIRONMENTAL ASSOCIATES

1608 13th Avenue South, Suite 300
Birmingham Alabama 35205
Tel: 205-918-4000
Fax: 205-918-4050

Chain of Custody and Analytical Request

Page: ____ of ____

Project/Phase No: NWO1312.0150

COC Number(1): ____

LIMS Number: ____

Facility/Base I.D.: LHAAP

Project/Site Name: LHAAP / Site 58

Client Name:

Collected by: Scott Beesinger

Field Sample ID (30 Characters Max)	Date Collected (dd-mmm-yyyy)	Time Collected (Military) (hhmm)	Sample Depth (beginning - ending)	SA Code (2)	Sample Number (3)	Sample Matrix (4)	Number of containers	VOC	MEE	TOC	Carbon Dioxide	Anions	Arsenic					Ambient Blank Lot Control Number	Equipment Bl Control Nun
35AWW10_120720	07DEC2020	0750	-	N		WG	3	X											
35AWW10_120720_a	07DEC2020	0750	-	FD		WG	3	X											
35AWW13_120720	07DEC2020	0835	-	N		WG	3	X											
35AWW13_120720_MS	07DEC2020	0835		MS		WG	3	X											
35AWW13_120720_MSD	07DEC2020	0835		SD		WG	3	X											
35AWW01_120720	07DEC2020	0925	-	N		WG	4	X					X						
35AWW21_120720	07DEC2020	1100	-	N		WG	3	X											
35AWW09_120720	07DEC2020	1010	-	N		WG	3	X											
35AWW22_120720	07DEC2020	1140	-	N		WG	3	X											
35AWW12_120720	07DEC2020	1220	-	N		WG	3	X											
35AWW14_120720	07DEC2020	1230	-	N		WG	3	X											

Sample Analysis Requested (5) | Quality Assurance Samples (6)

COMMENTS:

HS20120479

Bhate Environmental Associates, Inc.
LHAAP-58

Custody Transfers Prior to Receipt by Laboratory

	Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1.	Scott Beesinger	12/8/20	1430	SM PM	12-9-20	10:50
2.						
3.						

Sample Delivery Details / Laboratory Receipt

Delivered Directly to Lab: ____ Shipped ____ No.:

Method of Shipment: ____

Fed Ex ____ Airbill Number: ____

Analytical Lab: ALS 10450 Stanciff Rd. Suite 210 Houston, TX 77099 (281) 530-5656

ATTN: SONIA WEST Lab Recipient: Delivery Date/Time:

1.) Chain of Custody Number = date collected + custody number (e.g. 09-02-1999-01)

2.) Sample Type (SA) Codes: N = Normal Sample, TB = Trip Blank (-c) Sample, FD = Field Duplicate (-a) Samples, FR = Field Replicate (-b) Samples, EB = Equipment Blank (-d) Samples, MS = Matrix Spike, SD = Matrix Spike Duplicate, AB = Ambient Blank (-e)

3.) Sample Number: Unique sample number collected from a particular location per day. (e.g. Groundwater sample collected from MW-1 on 10/10/99 = 01, if sampled again on 10/10/99 = 02, etc.)

4.) Matrix Codes: GS = Soil Gas, WG = Groundwater, WS = Surface Water, SO = Soil, SE = Sediment, SL = Sludge, SS = Surface Soil Samples, WQ = Aqueous Blank Samples (trip, equipment, ambient, etc), SQ = Soil Blanks

5.) Sample Analysis Requested: Analytical method requested and number of containers provided for each.

6.) Quality assurance samples are assigned by date (ddmmyy) and the sample number associated with the sample (01, 02, etc) (e.g. Equipment blank collected in association with MW-1 on 10/10/99 will be designated 10109901 in the Equipment Blank Lot Control

6141 3.3C 1R25 CFC

bhate ENVIRONMENTAL CONSTRUCTION LIMITED

1608 13th Avenue South, Suite 300
Birmingham Alabama 35205
Tel: 205-918-4000
Fax: 205-918-4050

Chain of Custody and Analytical Request

Page: ____ of ____

Project/Phase No: NWO1312.0150

COC Number(1): ____

LIMS Number: ____

Facility/Base I.D.: LHAAP

Project/Site Name: LHAAP / Site 58

Client Name:

Collected by: Scott Beesinger

Field Sample ID (30 Characters Max)	Date Collected (dd-mmm-yyyy)	Time Collected (Military) (hhmm)	Sample Depth (beginning - ending)	SA Code (2)	Sample Number (3)	Sample Matrix (4)	Sample Analysis Requested (5): Number of containers	VOC	MEE	TOC	Carbon Dioxide	Anions	Quality Assurance Samples (6): Ambient Blank Lot Control Number	Equipment Blank Lot Control Number	Trip Blank Lot Control Number
TRIP BLANK	07 DEC 2020		-	TB		WG	2	X							
			-												
			-												
			-												
			-												
			-												
			-												
			-												
			-												
			-												
			-												
			-												

Bhate Environmental Associates, Inc.
LHAAP-58
HS20120479

COMMENTS:

Custody Transfers Prior to Receipt by Laboratory

Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1. Scott Beesinger	12/8/20	1430	1. JM PM	12.9.20	10:50
2.			2.		
3.			3.		

Sample Delivery Details / Laboratory Receipt

Delivered Directly to Lab: ____ Shipped No.:

____ Method of Shipment: ____

____ Fed Ex ____ Airbill Number:

____ Analytical Lab: ALS 10450 Stanciff Rd. Suite 210 Houston TX 77099 (281) 530-5656

ATTN: SONIA WEST Lab Recipient: Delivery Date/Time:

1.) Chain of Custody Number = date collected + custody number (e.g. 09-02-1999-01)

2.) Sample Type (SA) Codes: N = Normal Sample, TB = Trip Blank (-c) Sample, FD = Field Duplicate (-a) Samples, FR = Field Replicate (-b) Samples, EB = Equipment Blank (-d) Samples, MS = Matrix Spike, SD = Matrix Spike Duplicate, AB = Ambient Blank (-e)

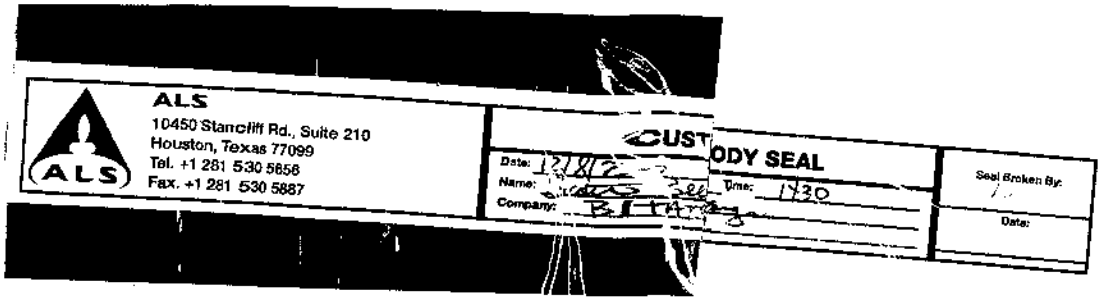
3.) Sample Number: Unique sample number collected from a particular location per day. (e.g. Groundwater sample collected from MW-1 on 10/10/99 = 01, if sampled again on 10/10/99 = 02, etc.)

4.) Matrix Codes: GS = Soil Gas, WG = Groundwater, WS = Surface Water, SO = Soil, SE = Sediment, SL = Sludge, SS = Surface Soil Samples, WQ = Aqueous Blank Samples (trip, equipment, ambient, etc), SQ = Soil Blanks

5.) Sample Analysis Requested: Analytical method requested and number of containers provided for each.

6.) Quality assurance samples are assigned by date (ddmmyy) and the sample number associated with the sample (01, 02, etc) (e.g. Equipment blank collected in association with MW-1 on 10/10/99 will be designated 10109901 in the Equipment Blank Lot Control

6141



ALS
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887

CUST ODY SEAL

Date: 12/8/2
Name:
Company: Billing
Time: 1730

Seal Broken By:
Date:

REF: LHAAP - 58 - BO 74790 - RJ
RMA:

FedEx Express

FedEx.
TRK# 0221 1891 8882 5703

WED - 09 DEC AA
PRIORITY OVERNIGHT

10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
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July 02, 2021

Marcia Olive
Bhate Environmental Associates, Inc.
445 Union Blvd Ste 129
Lakewood, CO 80228

Work Order: **HS21060181**

Laboratory Results for: **LHAAP-58**

Dear Marcia Olive,

ALS Environmental received 21 sample(s) on Jun 03, 2021 for the analysis presented in the following report.

This is a REVISED REPORT. Please see the Case Narrative for discussion concerning this revision.

Regards,

Generated By: COREY.GRANDITS
Ragen Giga
Project Manager

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Work Order: HS21060181

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS21060181-01	35AWW01_060121	Groundwater		01-Jun-2021 07:45	03-Jun-2021 10:30	☐
HS21060181-02	35AWW01_060121_a	Groundwater		01-Jun-2021 07:45	03-Jun-2021 10:30	☐
HS21060181-03	35AWW13_060121	Groundwater		01-Jun-2021 08:30	03-Jun-2021 10:30	☐
HS21060181-04	35AWW10_060121	Groundwater		01-Jun-2021 09:10	03-Jun-2021 10:30	☐
HS21060181-05	35AWW15_060121	Groundwater		01-Jun-2021 09:55	03-Jun-2021 10:30	☐
HS21060181-06	35AWW16_060121	Groundwater		01-Jun-2021 10:35	03-Jun-2021 10:30	☐
HS21060181-07	35AWW18_060121	Groundwater		01-Jun-2021 11:20	03-Jun-2021 10:30	☐
HS21060181-08	35AWW24_060121	Groundwater		01-Jun-2021 12:05	03-Jun-2021 10:30	☐
HS21060181-09	35AWW24_060121_a	Groundwater		01-Jun-2021 12:05	03-Jun-2021 10:30	☐
HS21060181-10	35AWW21_060121	Groundwater		01-Jun-2021 12:50	03-Jun-2021 10:30	☐
HS21060181-11	35AWW14_060121	Groundwater		01-Jun-2021 13:00	03-Jun-2021 10:30	☐
HS21060181-12	35AWW09_060221	Groundwater		02-Jun-2021 07:10	03-Jun-2021 10:30	☐
HS21060181-13	35AWW09_060221_a	Groundwater		02-Jun-2021 07:10	03-Jun-2021 08:00	☐
HS21060181-14	03WW01_060221	Groundwater		02-Jun-2021 08:05	03-Jun-2021 08:00	☐
HS21060181-15	35AWW08_060221	Groundwater		02-Jun-2021 08:55	03-Jun-2021 08:00	☐
HS21060181-16	35AWW11_060221	Groundwater		02-Jun-2021 09:45	03-Jun-2021 08:00	☐
HS21060181-17	LHSMW07_060221	Groundwater		02-Jun-2021 10:35	03-Jun-2021 08:00	☐
HS21060181-18	35AWW05_060221	Groundwater		02-Jun-2021 11:30	03-Jun-2021 10:30	☐
HS21060181-19	35AWW22_060221	Groundwater		02-Jun-2021 12:25	03-Jun-2021 10:30	☐
HS21060181-20	35AWW12_060221	Groundwater		02-Jun-2021 12:10	03-Jun-2021 10:30	☐
HS21060181-21	Trip Blank	Groundwater	CG 051121 -66	02-Jun-2021 00:00	03-Jun-2021 10:30	☐

Revision:1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc. **CASE NARRATIVE**
Project: LHAAP-58
Work Order: HS21060181

Work Order Comments

- Revision I - This report was revised on July 01, 2021 to include the missing RSK data.

  Revision II - This report was revised on July 02, 2021 to include the missing DHC/DHB sub data.

  The analysis for RSK/CO2 was subcontracted to ALS Simi Valley, CA. The analysis for VFA subcontracted to ALS Rochester, NY. Final Report attached.

GCMS Volatiles by Method SW8260

Batch ID: R385452

Sample ID: 35AWW08_060221 (HS21060181-15)

- Lowest practical dilution for sample HS21060181-15. Sample is very foamy.

Sample ID: 35AWW16_060121 (HS21060181-06MS)

- The recovery of the Matrix Spike (MS) associated to this analyte was outside of the established control limits. However, the LCS was within control limits. The recovery of the MS may be due to sample matrix interference. Chloroform

Sample ID: 35AWW16_060121 (HS21060181-06MSD)

- The recovery of the Matrix Spike Duplicate (MSD) associated to this analyte was outside of the established control limits. However, the LCS was within control limits. The failed recovery of the MSD may be due to sample matrix interference. Chloroform
- The RPD between the MS and MSD was outside of the control limit. Naphthalene

Batch ID: R385121

Sample ID: 35AWW10_060121 (HS21060181-04MS)

- MS/MSD failed QC limnits for some few compounds

Sample ID: CCV

- Hexachlorobutadiene exceeded %D limits for CCV. Samples are ND for this compound.

Sample ID: VLCSW-210607

- Hexachlorobutadiene, 1,2,3-Trichlorobenzene, 1,2,4-Trichlorobenzene and Naphthalene exceeded QC limits for LCS. Samples are ND for these compounds.

Batch ID: R385224

Sample ID: CCV-END

- The ending CCV for batch R385224 unexpectedly ran outside of tune time. Two samples had insufficient vials remaining to perform reanalysis with a closing CCV within tune time. Tetrachloroethene is reported in samples HS21060181-12 and -13, which are bracketed by this non-conforming closing CCV. All other affected samples were reanalyzed.

Metals by Method SW6020A

Batch ID: 166919

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc. **CASE NARRATIVE**
Project: LHAAP-58
Work Order: HS21060181

WetChemistry by Method E415.1

Batch ID: R385048,R385254

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method SW9056

Batch ID: R384952

Sample ID: 03WW01_060221 (HS21060181-14)

- Sample ran at 5X due to high concentration of Chloride

Sample ID: 35AWW08_060221 (HS21060181-15)

- Sample ran at 5X due to high concentration of Chloride

Sample ID: 35AWW09_060221 (HS21060181-12)

- Sample ran at 5X due to high concentration of Chloride and Sulfate

Sample ID: 35AWW11_060221 (HS21060181-16)

- Sample ran at 5X due to high concentration of Chloride

Sample ID: LHSMW07_060221 (HS21060181-17)

- Sample ran at 5X due to high concentration of Chloride and Sulfate

Sample ID: 35AWW09_060221_a (HS21060181-13MS)

- The MS and/or MSD recovery was outside of the control limits; however, the result in the parent sample is greater than 4x the spike amount. Sulfate)

Batch ID: R385033

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW01_060121
Collection Date: 01-Jun-2021 07:45

ANALYTICAL REPORT
WorkOrder:HS21060181
Lab ID:HS21060181-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 15:26
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 15:26
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 15:26
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 15:26
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 15:26
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 15:26
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 15:26
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 15:26
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 15:26
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 15:26
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 15:26
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 15:26
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 15:26
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 15:26
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 15:26
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 15:26
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 15:26
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 15:26
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 15:26
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 15:26
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 15:26
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	07-Jun-2021 15:26
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 15:26
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	07-Jun-2021 15:26
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 15:26
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 15:26
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	07-Jun-2021 15:26
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	07-Jun-2021 15:26
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 15:26
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 15:26
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 15:26
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 15:26
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 15:26
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 15:26
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	07-Jun-2021 15:26
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 15:26
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 15:26
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 15:26
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 15:26

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW01_060121
Collection Date: 01-Jun-2021 07:45

ANALYTICAL REPORT
WorkOrder:HS21060181
Lab ID:HS21060181-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 15:26
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 15:26
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	07-Jun-2021 15:26
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 15:26
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 15:26
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 15:26
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 15:26
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	07-Jun-2021 15:26
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 15:26
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	07-Jun-2021 15:26
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	07-Jun-2021 15:26
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 15:26
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 15:26
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 15:26
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 15:26
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 15:26
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 15:26
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 15:26
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 15:26
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 15:26
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 15:26
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 15:26
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 15:26
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 15:26
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 15:26
Surr: 1,2-Dichloroethane-d4	*93.8*			**0**	*81-118*	*%REC*	*1*	*07-Jun-2021 15:26*
Surr: 4-Bromofluorobenzene	*95.9*			**0**	*85-114*	*%REC*	*1*	*07-Jun-2021 15:26*
Surr: Dibromofluoromethane	*89.6*			**0**	*80-119*	*%REC*	*1*	*07-Jun-2021 15:26*
Surr: Toluene-d8	*103*			**0**	*89-112*	*%REC*	*1*	*07-Jun-2021 15:26*
METALS BY ICPMS BY SW6020A		**Method:SW6020A**				Prep:SW3010A / 16-Jun-2021		Analyst: JHD
Arsenic	0.00100	U	0.000400	0.00100	0.00500	mg/L	1	17-Jun-2021 11:38

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW01_060121_a
Collection Date: 01-Jun-2021 07:45

ANALYTICAL REPORT
WorkOrder:HS21060181
Lab ID:HS21060181-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 15:47
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 15:47
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 15:47
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 15:47
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 15:47
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 15:47
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 15:47
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 15:47
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 15:47
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 15:47
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 15:47
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 15:47
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 15:47
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 15:47
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 15:47
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 15:47
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 15:47
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 15:47
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 15:47
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 15:47
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 15:47
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	07-Jun-2021 15:47
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 15:47
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	07-Jun-2021 15:47
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 15:47
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 15:47
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	07-Jun-2021 15:47
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	07-Jun-2021 15:47
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 15:47
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 15:47
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 15:47
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 15:47
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 15:47
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 15:47
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	07-Jun-2021 15:47
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 15:47
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 15:47
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 15:47
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 15:47

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

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ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW01_060121_a
Collection Date: 01-Jun-2021 07:45

ANALYTICAL REPORT
WorkOrder:HS21060181
Lab ID:HS21060181-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 15:47
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 15:47
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	07-Jun-2021 15:47
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 15:47
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 15:47
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 15:47
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 15:47
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	07-Jun-2021 15:47
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 15:47
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	07-Jun-2021 15:47
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	07-Jun-2021 15:47
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 15:47
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 15:47
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 15:47
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 15:47
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 15:47
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 15:47
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 15:47
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 15:47
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 15:47
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 15:47
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 15:47
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 15:47
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 15:47
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 15:47
Surr: 1,2-Dichloroethane-d4	*93.3*			**0**	*81-118*	*%REC*	*1*	*07-Jun-2021 15:47*
Surr: 4-Bromofluorobenzene	*92.7*			**0**	*85-114*	*%REC*	*1*	*07-Jun-2021 15:47*
Surr: Dibromofluoromethane	*89.0*			**0**	*80-119*	*%REC*	*1*	*07-Jun-2021 15:47*
Surr: Toluene-d8	*106*			**0**	*89-112*	*%REC*	*1*	*07-Jun-2021 15:47*
METALS BY ICPMS BY SW6020A		**Method:SW6020A**				Prep:SW3010A / 16-Jun-2021		Analyst: JHD
Arsenic	0.00100	U	0.000400	0.00100	0.00500	mg/L	1	17-Jun-2021 11:40

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW13_060121
Collection Date: 01-Jun-2021 08:30

ANALYTICAL REPORT
WorkOrder:HS21060181
Lab ID:HS21060181-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 16:08
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 16:08
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 16:08
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 16:08
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 16:08
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 16:08
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 16:08
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 16:08
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 16:08
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 16:08
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 16:08
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 16:08
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 16:08
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 16:08
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 16:08
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 16:08
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 16:08
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 16:08
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 16:08
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 16:08
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 16:08
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	07-Jun-2021 16:08
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 16:08
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	07-Jun-2021 16:08
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 16:08
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 16:08
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	07-Jun-2021 16:08
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	07-Jun-2021 16:08
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 16:08
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 16:08
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 16:08
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 16:08
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 16:08
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 16:08
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	07-Jun-2021 16:08
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 16:08
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 16:08
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 16:08
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 16:08

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW13_060121
Collection Date: 01-Jun-2021 08:30

ANALYTICAL REPORT
WorkOrder:HS21060181
Lab ID:HS21060181-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 16:08
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 16:08
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	07-Jun-2021 16:08
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 16:08
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 16:08
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 16:08
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 16:08
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	07-Jun-2021 16:08
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 16:08
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	07-Jun-2021 16:08
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	07-Jun-2021 16:08
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 16:08
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 16:08
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 16:08
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 16:08
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 16:08
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 16:08
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 16:08
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 16:08
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 16:08
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 16:08
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 16:08
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 16:08
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 16:08
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 16:08
Surr: 1,2-Dichloroethane-d4	*91.2*			**0**	*81-118*	*%REC*	*1*	*07-Jun-2021 16:08*
Surr: 4-Bromofluorobenzene	*95.7*			**0**	*85-114*	*%REC*	*1*	*07-Jun-2021 16:08*
Surr: Dibromofluoromethane	*88.4*			**0**	*80-119*	*%REC*	*1*	*07-Jun-2021 16:08*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*1*	*07-Jun-2021 16:08*

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW10_060121
Collection Date: 01-Jun-2021 09:10

ANALYTICAL REPORT
WorkOrder:HS21060181
Lab ID:HS21060181-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 12:59
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 12:59
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 12:59
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 12:59
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 12:59
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 12:59
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 12:59
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 12:59
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 12:59
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 12:59
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 12:59
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 12:59
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 12:59
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 12:59
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 12:59
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 12:59
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 12:59
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 12:59
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 12:59
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 12:59
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 12:59
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	07-Jun-2021 12:59
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 12:59
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	07-Jun-2021 12:59
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 12:59
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 12:59
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	07-Jun-2021 12:59
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	07-Jun-2021 12:59
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 12:59
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 12:59
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 12:59
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 12:59
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 12:59
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 12:59
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	07-Jun-2021 12:59
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 12:59
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 12:59
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 12:59
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 12:59

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW10_060121
Collection Date: 01-Jun-2021 09:10

ANALYTICAL REPORT
WorkOrder:HS21060181
Lab ID:HS21060181-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 12:59
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 12:59
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	07-Jun-2021 12:59
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 12:59
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 12:59
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 12:59
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 12:59
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	07-Jun-2021 12:59
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 12:59
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	07-Jun-2021 12:59
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	07-Jun-2021 12:59
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 12:59
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 12:59
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 12:59
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 12:59
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 12:59
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 12:59
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 12:59
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 12:59
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 12:59
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 12:59
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 12:59
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 12:59
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 12:59
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 12:59
Surr: 1,2-Dichloroethane-d4	*91.0*			**0**	*81-118*	*%REC*	*1*	*07-Jun-2021 12:59*
Surr: 4-Bromofluorobenzene	*93.1*			**0**	*85-114*	*%REC*	*1*	*07-Jun-2021 12:59*
Surr: Dibromofluoromethane	*87.7*			**0**	*80-119*	*%REC*	*1*	*07-Jun-2021 12:59*
Surr: Toluene-d8	*106*			**0**	*89-112*	*%REC*	*1*	*07-Jun-2021 12:59*

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW15_060121
Collection Date: 01-Jun-2021 09:55

ANALYTICAL REPORT
WorkOrder:HS21060181
Lab ID:HS21060181-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 16:29
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 16:29
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 16:29
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 16:29
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 16:29
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 16:29
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 16:29
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 16:29
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 16:29
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 16:29
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 16:29
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 16:29
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 16:29
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 16:29
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 16:29
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 16:29
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 16:29
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 16:29
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 16:29
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 16:29
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 16:29
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	07-Jun-2021 16:29
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 16:29
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	07-Jun-2021 16:29
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 16:29
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 16:29
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	07-Jun-2021 16:29
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	07-Jun-2021 16:29
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 16:29
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 16:29
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 16:29
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 16:29
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 16:29
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 16:29
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	07-Jun-2021 16:29
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 16:29
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 16:29
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 16:29
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 16:29

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

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ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW15_060121
Collection Date: 01-Jun-2021 09:55

ANALYTICAL REPORT
WorkOrder:HS21060181
Lab ID:HS21060181-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 16:29
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 16:29
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	07-Jun-2021 16:29
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 16:29
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 16:29
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 16:29
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 16:29
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	07-Jun-2021 16:29
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 16:29
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	07-Jun-2021 16:29
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	07-Jun-2021 16:29
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 16:29
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 16:29
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 16:29
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 16:29
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 16:29
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 16:29
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 16:29
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 16:29
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 16:29
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 16:29
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 16:29
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 16:29
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 16:29
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 16:29
Surr: 1,2-Dichloroethane-d4	*95.6*			**0**	*81-118*	*%REC*	*1*	*07-Jun-2021 16:29*
Surr: 4-Bromofluorobenzene	*96.2*			**0**	*85-114*	*%REC*	*1*	*07-Jun-2021 16:29*
Surr: Dibromofluoromethane	*90.1*			**0**	*80-119*	*%REC*	*1*	*07-Jun-2021 16:29*
Surr: Toluene-d8	*105*			**0**	*89-112*	*%REC*	*1*	*07-Jun-2021 16:29*

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
ANALYTICAL REPORT
Project: LHAAP-58
WorkOrder:HS21060181
Sample ID: 35AWW16_060121
Lab ID:HS21060181-06
Collection Date: 01-Jun-2021 10:35
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 14:03
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 14:03
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	11-Jun-2021 14:03
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 14:03
1,1-Dichloroethane	**0.46**	J	**0.20**	**0.50**	**1.0**	**ug/L**	1	11-Jun-2021 14:03
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 14:03
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 14:03
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	11-Jun-2021 14:03
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	11-Jun-2021 14:03
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	11-Jun-2021 14:03
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 14:03
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 14:03
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 14:03
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	11-Jun-2021 14:03
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 14:03
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	11-Jun-2021 14:03
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 14:03
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	11-Jun-2021 14:03
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 14:03
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	11-Jun-2021 14:03
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 14:03
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	11-Jun-2021 14:03
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 14:03
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	11-Jun-2021 14:03
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	11-Jun-2021 14:03
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 14:03
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	11-Jun-2021 14:03
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	11-Jun-2021 14:03
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 14:03
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	11-Jun-2021 14:03
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 14:03
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 14:03
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	11-Jun-2021 14:03
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	11-Jun-2021 14:03
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	11-Jun-2021 14:03
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	11-Jun-2021 14:03
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 14:03
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 14:03
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 14:03

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW16_060121
Collection Date: 01-Jun-2021 10:35

ANALYTICAL REPORT
WorkOrder:HS21060181
Lab ID:HS21060181-06
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 14:03
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 14:03
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	11-Jun-2021 14:03
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 14:03
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 14:03
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 14:03
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 14:03
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	11-Jun-2021 14:03
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 14:03
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	11-Jun-2021 14:03
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	11-Jun-2021 14:03
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	11-Jun-2021 14:03
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 14:03
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 14:03
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 14:03
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 14:03
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 14:03
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 14:03
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 14:03
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 14:03
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 14:03
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 14:03
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 14:03
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 14:03
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 14:03
Surr: 1,2-Dichloroethane-d4	*92.6*			**0**	*81-118*	*%REC*	*1*	*11-Jun-2021 14:03*
Surr: 4-Bromofluorobenzene	*95.9*			**0**	*85-114*	*%REC*	*1*	*11-Jun-2021 14:03*
Surr: Dibromofluoromethane	*88.8*			**0**	*80-119*	*%REC*	*1*	*11-Jun-2021 14:03*
Surr: Toluene-d8	*105*			**0**	*89-112*	*%REC*	*1*	*11-Jun-2021 14:03*

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc. **ANALYTICAL REPORT**
Project: LHAAP-58 WorkOrder:HS21060181
Sample ID: 35AWW18_060121 Lab ID:HS21060181-07
Collection Date: 01-Jun-2021 11:20 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 16:51
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 16:51
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 16:51
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 16:51
1,1-Dichloroethane	**3.1**		**0.20**	**0.50**	**1.0**	**ug/L**	1	07-Jun-2021 16:51
1,1-Dichloroethene	**20**		**0.20**	**0.50**	**1.0**	**ug/L**	1	07-Jun-2021 16:51
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 16:51
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 16:51
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 16:51
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 16:51
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 16:51
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 16:51
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 16:51
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 16:51
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 16:51
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 16:51
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 16:51
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 16:51
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 16:51
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 16:51
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 16:51
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	07-Jun-2021 16:51
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 16:51
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	07-Jun-2021 16:51
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 16:51
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 16:51
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	07-Jun-2021 16:51
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	07-Jun-2021 16:51
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 16:51
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 16:51
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 16:51
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 16:51
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 16:51
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 16:51
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	07-Jun-2021 16:51
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 16:51
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 16:51
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 16:51
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 16:51

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW18_060121
Collection Date: 01-Jun-2021 11:20

ANALYTICAL REPORT
WorkOrder:HS21060181
Lab ID:HS21060181-07
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 16:51
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 16:51
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	07-Jun-2021 16:51
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 16:51
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 16:51
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 16:51
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 16:51
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	07-Jun-2021 16:51
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 16:51
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	07-Jun-2021 16:51
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	07-Jun-2021 16:51
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 16:51
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 16:51
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 16:51
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 16:51
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 16:51
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 16:51
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 16:51
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 16:51
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 16:51
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 16:51
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 16:51
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 16:51
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 16:51
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 16:51
Surr: 1,2-Dichloroethane-d4	*91.7*			**0**	*81-118*	*%REC*	*1*	*07-Jun-2021 16:51*
Surr: 4-Bromofluorobenzene	*95.2*			**0**	*85-114*	*%REC*	*1*	*07-Jun-2021 16:51*
Surr: Dibromofluoromethane	*88.7*			**0**	*80-119*	*%REC*	*1*	*07-Jun-2021 16:51*
Surr: Toluene-d8	*102*			**0**	*89-112*	*%REC*	*1*	*07-Jun-2021 16:51*

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
ANALYTICAL REPORT
Project: LHAAP-58
WorkOrder:HS21060181
Sample ID: 35AWW24_060121
Lab ID:HS21060181-08
Collection Date: 01-Jun-2021 12:05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 17:12
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 17:12
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 17:12
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 17:12
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 17:12
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 17:12
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 17:12
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 17:12
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 17:12
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 17:12
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 17:12
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 17:12
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 17:12
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 17:12
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 17:12
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 17:12
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 17:12
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 17:12
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 17:12
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 17:12
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 17:12
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	07-Jun-2021 17:12
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 17:12
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	07-Jun-2021 17:12
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 17:12
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 17:12
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	07-Jun-2021 17:12
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	07-Jun-2021 17:12
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 17:12
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 17:12
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 17:12
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 17:12
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 17:12
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 17:12
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	07-Jun-2021 17:12
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 17:12
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 17:12
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 17:12
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 17:12

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW24_060121
Collection Date: 01-Jun-2021 12:05

ANALYTICAL REPORT
WorkOrder:HS21060181
Lab ID:HS21060181-08
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 17:12
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 17:12
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	07-Jun-2021 17:12
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 17:12
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 17:12
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 17:12
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 17:12
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	07-Jun-2021 17:12
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 17:12
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	07-Jun-2021 17:12
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	07-Jun-2021 17:12
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 17:12
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 17:12
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 17:12
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 17:12
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 17:12
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 17:12
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 17:12
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 17:12
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 17:12
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 17:12
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 17:12
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 17:12
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 17:12
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 17:12
Surr: 1,2-Dichloroethane-d4	*91.8*			**0**	*81-118*	*%REC*	*1*	*07-Jun-2021 17:12*
Surr: 4-Bromofluorobenzene	*99.0*			**0**	*85-114*	*%REC*	*1*	*07-Jun-2021 17:12*
Surr: Dibromofluoromethane	*88.2*			**0**	*80-119*	*%REC*	*1*	*07-Jun-2021 17:12*
Surr: Toluene-d8	*103*			**0**	*89-112*	*%REC*	*1*	*07-Jun-2021 17:12*

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW24_060121_a
Collection Date: 01-Jun-2021 12:05

ANALYTICAL REPORT
WorkOrder:HS21060181
Lab ID:HS21060181-09
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 17:33
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 17:33
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 17:33
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 17:33
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 17:33
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 17:33
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 17:33
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 17:33
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 17:33
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 17:33
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 17:33
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 17:33
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 17:33
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 17:33
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 17:33
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 17:33
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 17:33
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 17:33
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 17:33
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 17:33
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 17:33
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	07-Jun-2021 17:33
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 17:33
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	07-Jun-2021 17:33
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 17:33
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 17:33
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	07-Jun-2021 17:33
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	07-Jun-2021 17:33
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 17:33
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 17:33
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 17:33
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 17:33
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 17:33
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 17:33
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	07-Jun-2021 17:33
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 17:33
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 17:33
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 17:33
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 17:33

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW24_060121_a
Collection Date: 01-Jun-2021 12:05

ANALYTICAL REPORT
WorkOrder:HS21060181
Lab ID:HS21060181-09
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 17:33
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 17:33
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	07-Jun-2021 17:33
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 17:33
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 17:33
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 17:33
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 17:33
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	07-Jun-2021 17:33
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 17:33
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	07-Jun-2021 17:33
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	07-Jun-2021 17:33
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 17:33
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 17:33
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 17:33
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 17:33
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 17:33
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 17:33
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 17:33
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 17:33
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 17:33
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 17:33
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 17:33
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 17:33
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 17:33
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 17:33
Surr: 1,2-Dichloroethane-d4	*90.8*			**0**	*81-118*	*%REC*	*1*	*07-Jun-2021 17:33*
Surr: 4-Bromofluorobenzene	*96.3*			**0**	*85-114*	*%REC*	*1*	*07-Jun-2021 17:33*
Surr: Dibromofluoromethane	*88.5*			**0**	*80-119*	*%REC*	*1*	*07-Jun-2021 17:33*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*1*	*07-Jun-2021 17:33*

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW21_060121
Collection Date: 01-Jun-2021 12:50

ANALYTICAL REPORT
WorkOrder:HS21060181
Lab ID:HS21060181-10
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 17:54
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 17:54
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 17:54
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 17:54
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 17:54
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 17:54
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 17:54
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 17:54
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 17:54
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 17:54
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 17:54
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 17:54
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 17:54
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 17:54
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 17:54
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 17:54
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 17:54
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 17:54
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 17:54
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 17:54
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 17:54
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	07-Jun-2021 17:54
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 17:54
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	07-Jun-2021 17:54
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 17:54
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 17:54
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	07-Jun-2021 17:54
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	07-Jun-2021 17:54
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 17:54
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 17:54
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 17:54
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 17:54
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 17:54
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 17:54
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	07-Jun-2021 17:54
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 17:54
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 17:54
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 17:54
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 17:54

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW21_060121
Collection Date: 01-Jun-2021 12:50

ANALYTICAL REPORT
WorkOrder:HS21060181
Lab ID:HS21060181-10
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 17:54
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 17:54
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	07-Jun-2021 17:54
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 17:54
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 17:54
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 17:54
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 17:54
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	07-Jun-2021 17:54
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 17:54
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	07-Jun-2021 17:54
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	07-Jun-2021 17:54
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 17:54
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 17:54
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 17:54
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 17:54
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 17:54
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 17:54
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 17:54
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 17:54
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 17:54
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 17:54
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 17:54
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 17:54
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 17:54
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 17:54
Surr: 1,2-Dichloroethane-d4	*93.0*			**0**	*81-118*	*%REC*	*1*	*07-Jun-2021 17:54*
Surr: 4-Bromofluorobenzene	*95.2*			**0**	*85-114*	*%REC*	*1*	*07-Jun-2021 17:54*
Surr: Dibromofluoromethane	*88.7*			**0**	*80-119*	*%REC*	*1*	*07-Jun-2021 17:54*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*1*	*07-Jun-2021 17:54*

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW14_060121
Collection Date: 01-Jun-2021 13:00

ANALYTICAL REPORT
WorkOrder:HS21060181
Lab ID:HS21060181-11
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 18:15
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 18:15
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 18:15
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 18:15
1,1-Dichloroethane	**11**		**0.20**	**0.50**	**1.0**	**ug/L**	1	07-Jun-2021 18:15
1,1-Dichloroethene	**10.0**		**0.20**	**0.50**	**1.0**	**ug/L**	1	07-Jun-2021 18:15
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 18:15
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 18:15
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 18:15
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 18:15
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 18:15
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 18:15
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 18:15
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 18:15
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 18:15
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 18:15
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 18:15
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 18:15
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 18:15
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 18:15
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 18:15
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	07-Jun-2021 18:15
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 18:15
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	07-Jun-2021 18:15
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 18:15
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 18:15
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	07-Jun-2021 18:15
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	07-Jun-2021 18:15
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 18:15
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 18:15
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 18:15
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 18:15
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 18:15
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 18:15
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	07-Jun-2021 18:15
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 18:15
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 18:15
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 18:15
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 18:15

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW14_060121
Collection Date: 01-Jun-2021 13:00

ANALYTICAL REPORT
WorkOrder:HS21060181
Lab ID:HS21060181-11
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 18:15
cis-1,2-Dichloroethene	**5.0**		**0.20**	**0.50**	**1.0**	**ug/L**	1	07-Jun-2021 18:15
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	07-Jun-2021 18:15
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 18:15
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 18:15
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 18:15
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 18:15
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	07-Jun-2021 18:15
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 18:15
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	07-Jun-2021 18:15
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	07-Jun-2021 18:15
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 18:15
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 18:15
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 18:15
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 18:15
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 18:15
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 18:15
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 18:15
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 18:15
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 18:15
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 18:15
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 18:15
Trichloroethene	**14**		**0.20**	**0.50**	**1.0**	**ug/L**	1	07-Jun-2021 18:15
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 18:15
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 18:15
Surr: 1,2-Dichloroethane-d4	*90.5*			**0**	*81-118*	*%REC*	*1*	*07-Jun-2021 18:15*
Surr: 4-Bromofluorobenzene	*94.9*			**0**	*85-114*	*%REC*	*1*	*07-Jun-2021 18:15*
Surr: Dibromofluoromethane	*87.0*			**0**	*80-119*	*%REC*	*1*	*07-Jun-2021 18:15*
Surr: Toluene-d8	*106*			**0**	*89-112*	*%REC*	*1*	*07-Jun-2021 18:15*

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW09_060221
Collection Date: 02-Jun-2021 07:10

ANALYTICAL REPORT
WorkOrder:HS21060181
Lab ID:HS21060181-12
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 13:20
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 13:20
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 13:20
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 13:20
1,1-Dichloroethane	**0.57**	J	**0.20**	**0.50**	**1.0**	**ug/L**	1	07-Jun-2021 13:20
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 13:20
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 13:20
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 13:20
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 13:20
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 13:20
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 13:20
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 13:20
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 13:20
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 13:20
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 13:20
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 13:20
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 13:20
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 13:20
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 13:20
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 13:20
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 13:20
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	07-Jun-2021 13:20
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 13:20
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	07-Jun-2021 13:20
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 13:20
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 13:20
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	07-Jun-2021 13:20
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	07-Jun-2021 13:20
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 13:20
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 13:20
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 13:20
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 13:20
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 13:20
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 13:20
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	07-Jun-2021 13:20
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 13:20
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 13:20
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 13:20
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 13:20

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW09_060221
Collection Date: 02-Jun-2021 07:10

ANALYTICAL REPORT
WorkOrder:HS21060181
Lab ID:HS21060181-12
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 13:20
cis-1,2-Dichloroethene	**0.88**	J	**0.20**	**0.50**	**1.0**	**ug/L**	1	07-Jun-2021 13:20
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	07-Jun-2021 13:20
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 13:20
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 13:20
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 13:20
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 13:20
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	07-Jun-2021 13:20
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 13:20
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	07-Jun-2021 13:20
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	07-Jun-2021 13:20
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 13:20
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 13:20
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 13:20
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 13:20
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 13:20
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 13:20
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 13:20
Tetrachloroethene	**350**		**3.0**	**10**	**10**	**ug/L**	10	08-Jun-2021 15:49
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 13:20
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 13:20
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 13:20
Trichloroethene	**130**		**0.20**	**0.50**	**1.0**	**ug/L**	1	07-Jun-2021 13:20
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 13:20
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 13:20
Surr: 1,2-Dichloroethane-d4	*91.7*			**0**	*81-118*	*%REC*	*1*	*07-Jun-2021 13:20*
Surr: 1,2-Dichloroethane-d4	*92.3*			**0**	*81-118*	*%REC*	*10*	*08-Jun-2021 15:49*
Surr: 4-Bromofluorobenzene	*95.4*			**0**	*85-114*	*%REC*	*1*	*07-Jun-2021 13:20*
Surr: 4-Bromofluorobenzene	*97.6*			**0**	*85-114*	*%REC*	*10*	*08-Jun-2021 15:49*
Surr: Dibromofluoromethane	*88.7*			**0**	*80-119*	*%REC*	*1*	*07-Jun-2021 13:20*
Surr: Dibromofluoromethane	*88.3*			**0**	*80-119*	*%REC*	*10*	*08-Jun-2021 15:49*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*1*	*07-Jun-2021 13:20*
Surr: Toluene-d8	*103*			**0**	*89-112*	*%REC*	*10*	*08-Jun-2021 15:49*
METALS BY ICPMS BY SW6020A		**Method:SW6020A**				Prep:SW3010A / 16-Jun-2021		Analyst: JHD
Arsenic	**0.000987**	J	**0.000400**	**0.00100**	**0.00500**	**mg/L**	1	17-Jun-2021 11:50
TOTAL ORGANIC CARBON BY E415.1		**Method:E415.1**						Analyst: JAC
Organic Carbon, Total	**7.50**		**0.500**	**0.500**	**1.00**	**mg/L**	1	05-Jun-2021 01:57

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW09_060221
Collection Date: 02-Jun-2021 07:10

ANALYTICAL REPORT
WorkOrder:HS21060181
Lab ID:HS21060181-12
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
ANIONS BY SW9056A		**Method:SW9056**						Analyst: YP
Chloride	**1,430**		**10.0**	**25.0**	**25.0**	**mg/L**	50	04-Jun-2021 15:10
Nitrogen, Nitrate (As N)	**0.416**	J	**0.150**	**0.500**	**0.500**	**mg/L**	5	03-Jun-2021 18:03
Nitrogen, Nitrite (As N)	0.500	U	0.150	0.500	0.500	mg/L	5	03-Jun-2021 18:03
Sulfate	**916**		**10.0**	**25.0**	**25.0**	**mg/L**	50	04-Jun-2021 15:10
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUBCA
Subcontract Analysis	See Attached		0	0		NA	1	01-Jul-2021 09:25
SUBCONTRACT ANALYSIS - VOLATILE FATTY ACIDS		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	25-Jun-2021 17:38

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW09_060221_a
Collection Date: 02-Jun-2021 07:10

ANALYTICAL REPORT
WorkOrder:HS21060181
Lab ID:HS21060181-13
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 13:41
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 13:41
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 13:41
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 13:41
1,1-Dichloroethane	**0.63**	J	**0.20**	**0.50**	**1.0**	**ug/L**	1	07-Jun-2021 13:41
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 13:41
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 13:41
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 13:41
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 13:41
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 13:41
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 13:41
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 13:41
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 13:41
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 13:41
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 13:41
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 13:41
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 13:41
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 13:41
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 13:41
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 13:41
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 13:41
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	07-Jun-2021 13:41
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 13:41
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	07-Jun-2021 13:41
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 13:41
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 13:41
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	07-Jun-2021 13:41
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	07-Jun-2021 13:41
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 13:41
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 13:41
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 13:41
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 13:41
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 13:41
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 13:41
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	07-Jun-2021 13:41
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 13:41
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 13:41
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 13:41
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 13:41

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW09_060221_a
Collection Date: 02-Jun-2021 07:10

ANALYTICAL REPORT
WorkOrder:HS21060181
Lab ID:HS21060181-13
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 13:41
cis-1,2-Dichloroethene	**0.89**	J	**0.20**	**0.50**	**1.0**	**ug/L**	1	07-Jun-2021 13:41
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	07-Jun-2021 13:41
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 13:41
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 13:41
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 13:41
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 13:41
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	07-Jun-2021 13:41
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 13:41
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	07-Jun-2021 13:41
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	07-Jun-2021 13:41
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 13:41
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 13:41
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 13:41
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 13:41
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 13:41
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 13:41
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 13:41
Tetrachloroethene	**310**		**3.0**	**10**	**10**	**ug/L**	10	08-Jun-2021 16:10
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 13:41
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 13:41
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 13:41
Trichloroethene	**130**		**0.20**	**0.50**	**1.0**	**ug/L**	1	07-Jun-2021 13:41
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 13:41
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 13:41
Surr: 1,2-Dichloroethane-d4	*92.7*			**0**	*81-118*	*%REC*	*1*	*07-Jun-2021 13:41*
Surr: 1,2-Dichloroethane-d4	*94.2*			**0**	*81-118*	*%REC*	*10*	*08-Jun-2021 16:10*
Surr: 4-Bromofluorobenzene	*93.9*			**0**	*85-114*	*%REC*	*1*	*07-Jun-2021 13:41*
Surr: 4-Bromofluorobenzene	*94.7*			**0**	*85-114*	*%REC*	*10*	*08-Jun-2021 16:10*
Surr: Dibromofluoromethane	*88.1*			**0**	*80-119*	*%REC*	*1*	*07-Jun-2021 13:41*
Surr: Dibromofluoromethane	*89.2*			**0**	*80-119*	*%REC*	*10*	*08-Jun-2021 16:10*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*1*	*07-Jun-2021 13:41*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*10*	*08-Jun-2021 16:10*
METALS BY ICPMS BY SW6020A		**Method:SW6020A**				Prep:SW3010A / 16-Jun-2021		Analyst: JHD
Arsenic	**0.000913**	J	**0.000400**	**0.00100**	**0.00500**	**mg/L**	1	17-Jun-2021 11:52
TOTAL ORGANIC CARBON BY E415.1		**Method:E415.1**						Analyst: JAC
Organic Carbon, Total	**7.68**		**0.500**	**0.500**	**1.00**	**mg/L**	1	05-Jun-2021 02:26

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW09_060221_a
Collection Date: 02-Jun-2021 07:10

ANALYTICAL REPORT
WorkOrder:HS21060181
Lab ID:HS21060181-13
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
ANIONS BY SW9056A		**Method:SW9056**						Analyst: YP
Chloride	**1,420**		**10.0**	**25.0**	**25.0**	**mg/L**	50	04-Jun-2021 15:18
Nitrogen, Nitrate (As N)	0.500	U	0.150	0.500	0.500	mg/L	5	03-Jun-2021 18:11
Nitrogen, Nitrite (As N)	0.500	U	0.150	0.500	0.500	mg/L	5	03-Jun-2021 18:11
Sulfate	**880**		**10.0**	**25.0**	**25.0**	**mg/L**	50	04-Jun-2021 15:18
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUBCA
Subcontract Analysis	See Attached		0	0		NA	1	01-Jul-2021 09:25
SUBCONTRACT ANALYSIS - VOLATILE FATTY ACIDS		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	25-Jun-2021 17:38

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 03WW01_060221
Collection Date: 02-Jun-2021 08:05

ANALYTICAL REPORT
WorkOrder:HS21060181
Lab ID:HS21060181-14
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 18:36
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 18:36
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 18:36
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 18:36
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 18:36
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 18:36
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 18:36
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 18:36
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 18:36
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 18:36
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 18:36
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 18:36
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 18:36
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 18:36
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 18:36
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 18:36
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 18:36
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 18:36
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 18:36
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 18:36
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 18:36
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	07-Jun-2021 18:36
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 18:36
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	07-Jun-2021 18:36
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 18:36
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 18:36
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	07-Jun-2021 18:36
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	07-Jun-2021 18:36
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 18:36
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 18:36
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 18:36
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 18:36
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 18:36
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 18:36
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	07-Jun-2021 18:36
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 18:36
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 18:36
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 18:36
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 18:36

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 03WW01_060221
Collection Date: 02-Jun-2021 08:05

ANALYTICAL REPORT
WorkOrder:HS21060181
Lab ID:HS21060181-14
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 18:36
cis-1,2-Dichloroethene	**11**		**0.20**	**0.50**	**1.0**	**ug/L**	1	07-Jun-2021 18:36
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	07-Jun-2021 18:36
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 18:36
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 18:36
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 18:36
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 18:36
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	07-Jun-2021 18:36
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 18:36
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	07-Jun-2021 18:36
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	07-Jun-2021 18:36
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 18:36
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 18:36
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 18:36
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 18:36
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 18:36
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 18:36
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 18:36
Tetrachloroethene	**11**		**0.30**	**1.0**	**1.0**	**ug/L**	1	07-Jun-2021 18:36
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 18:36
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 18:36
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 18:36
Trichloroethene	**3.0**		**0.20**	**0.50**	**1.0**	**ug/L**	1	07-Jun-2021 18:36
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 18:36
Vinyl chloride	**1.6**		**0.20**	**0.50**	**1.0**	**ug/L**	1	07-Jun-2021 18:36
Surr: 1,2-Dichloroethane-d4	*92.8*			**0**	*81-118*	*%REC*	*1*	*07-Jun-2021 18:36*
Surr: 4-Bromofluorobenzene	*94.2*			**0**	*85-114*	*%REC*	*1*	*07-Jun-2021 18:36*
Surr: Dibromofluoromethane	*88.6*			**0**	*80-119*	*%REC*	*1*	*07-Jun-2021 18:36*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*1*	*07-Jun-2021 18:36*
METALS BY ICPMS BY SW6020A		**Method:SW6020A**				Prep:SW3010A / 16-Jun-2021		Analyst: JHD
Arsenic	**0.0169**	J	**0.00400**	**0.0100**	**0.0500**	**mg/L**	1	17-Jun-2021 11:55
TOTAL ORGANIC CARBON BY E415.1		**Method:E415.1**						Analyst: JAC
Organic Carbon, Total	**103**		**2.50**	**2.50**	**5.00**	**mg/L**	5	08-Jun-2021 18:21
ANIONS BY SW9056A		**Method:SW9056**						Analyst: YP
Chloride	**945**		**10.0**	**25.0**	**25.0**	**mg/L**	50	04-Jun-2021 16:47
Nitrogen, Nitrate (As N)	0.500	U	0.150	0.500	0.500	mg/L	5	03-Jun-2021 18:34
Nitrogen, Nitrite (As N)	0.500	U	0.150	0.500	0.500	mg/L	5	03-Jun-2021 18:34
Sulfate	**180**		**1.00**	**2.50**	**2.50**	**mg/L**	5	03-Jun-2021 18:34

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 03WW01_060221
Collection Date: 02-Jun-2021 08:05

ANALYTICAL REPORT
WorkOrder:HS21060181
Lab ID:HS21060181-14
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - DHC/DHB		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	02-Jul-2021 17:44
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUBCA
Subcontract Analysis	See Attached		0	0		NA	1	01-Jul-2021 09:25
SUBCONTRACT ANALYSIS - VOLATILE FATTY ACIDS		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	25-Jun-2021 17:38

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW08_060221
Collection Date: 02-Jun-2021 08:55

ANALYTICAL REPORT
WorkOrder:HS21060181
Lab ID:HS21060181-15
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	25	U	7.5	25	25	ug/L	25	11-Jun-2021 14:24
1,1,1-Trichloroethane	12	U	5.0	12	25	ug/L	25	11-Jun-2021 14:24
1,1,2,2-Tetrachloroethane	25	U	12	25	25	ug/L	25	11-Jun-2021 14:24
1,1,2-Trichloroethane	25	U	7.5	25	25	ug/L	25	11-Jun-2021 14:24
1,1-Dichloroethane	12	U	5.0	12	25	ug/L	25	11-Jun-2021 14:24
1,1-Dichloroethene	12	U	5.0	12	25	ug/L	25	11-Jun-2021 14:24
1,1-Dichloropropene	25	U	7.5	25	25	ug/L	25	11-Jun-2021 14:24
1,2,3-Trichlorobenzene	25	U	10	25	25	ug/L	25	11-Jun-2021 14:24
1,2,3-Trichloropropane	25	U	12	25	25	ug/L	25	11-Jun-2021 14:24
1,2,4-Trichlorobenzene	25	U	12	25	25	ug/L	25	11-Jun-2021 14:24
1,2,4-Trimethylbenzene	25	U	7.5	25	25	ug/L	25	11-Jun-2021 14:24
1,2-Dibromo-3-chloropropane	12	U	5.0	12	25	ug/L	25	11-Jun-2021 14:24
1,2-Dibromoethane	12	U	5.0	12	25	ug/L	25	11-Jun-2021 14:24
1,2-Dichlorobenzene	25	U	12	25	25	ug/L	25	11-Jun-2021 14:24
1,2-Dichloroethane	12	U	5.0	12	25	ug/L	25	11-Jun-2021 14:24
1,2-Dichloropropane	25	U	12	25	25	ug/L	25	11-Jun-2021 14:24
1,3,5-Trimethylbenzene	25	U	7.5	25	25	ug/L	25	11-Jun-2021 14:24
1,3-Dichlorobenzene	25	U	10	25	25	ug/L	25	11-Jun-2021 14:24
1,3-Dichloropropane	25	U	7.5	25	25	ug/L	25	11-Jun-2021 14:24
1,4-Dichlorobenzene	25	U	10	25	25	ug/L	25	11-Jun-2021 14:24
2,2-Dichloropropane	12	U	5.0	12	25	ug/L	25	11-Jun-2021 14:24
2-Butanone	25	U	12	25	50	ug/L	25	11-Jun-2021 14:24
2-Chlorotoluene	25	U	7.5	25	25	ug/L	25	11-Jun-2021 14:24
2-Hexanone	50	U	25	50	50	ug/L	25	11-Jun-2021 14:24
4-Chlorotoluene	25	U	10	25	25	ug/L	25	11-Jun-2021 14:24
4-Isopropyltoluene	25	U	7.5	25	25	ug/L	25	11-Jun-2021 14:24
4-Methyl-2-pentanone	50	U	18	50	50	ug/L	25	11-Jun-2021 14:24
Acetone	50	U	10	50	50	ug/L	25	11-Jun-2021 14:24
Benzene	12	U	5.0	12	25	ug/L	25	11-Jun-2021 14:24
Bromobenzene	25	U	10	25	25	ug/L	25	11-Jun-2021 14:24
Bromochloromethane	12	U	5.0	12	25	ug/L	25	11-Jun-2021 14:24
Bromodichloromethane	12	U	5.0	12	25	ug/L	25	11-Jun-2021 14:24
Bromoform	25	U	10	25	25	ug/L	25	11-Jun-2021 14:24
Bromomethane	25	U	10	25	25	ug/L	25	11-Jun-2021 14:24
Carbon disulfide	50	U	15	50	50	ug/L	25	11-Jun-2021 14:24
Carbon tetrachloride	25	U	12	25	25	ug/L	25	11-Jun-2021 14:24
Chlorobenzene	25	U	7.5	25	25	ug/L	25	11-Jun-2021 14:24
Chloroethane	25	U	7.5	25	25	ug/L	25	11-Jun-2021 14:24
Chloroform	12	U	5.0	12	25	ug/L	25	11-Jun-2021 14:24

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW08_060221
Collection Date: 02-Jun-2021 08:55

ANALYTICAL REPORT
WorkOrder:HS21060181
Lab ID:HS21060181-15
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	12	U	5.0	12	25	ug/L	25	11-Jun-2021 14:24
cis-1,2-Dichloroethene	**30**		**5.0**	**12**	**25**	**ug/L**	25	11-Jun-2021 14:24
cis-1,3-Dichloropropene	12	U	2.5	12	25	ug/L	25	11-Jun-2021 14:24
Dibromochloromethane	25	U	7.5	25	25	ug/L	25	11-Jun-2021 14:24
Dibromomethane	12	U	5.0	12	25	ug/L	25	11-Jun-2021 14:24
Dichlorodifluoromethane	25	U	7.5	25	25	ug/L	25	11-Jun-2021 14:24
Ethylbenzene	25	U	7.5	25	25	ug/L	25	11-Jun-2021 14:24
Hexachlorobutadiene	25	U	25	25	25	ug/L	25	11-Jun-2021 14:24
Isopropylbenzene	25	U	7.5	25	25	ug/L	25	11-Jun-2021 14:24
m,p-Xylene	25	U	12	25	50	ug/L	25	11-Jun-2021 14:24
Methylene chloride	50	U	10	50	50	ug/L	25	11-Jun-2021 14:24
n-Butylbenzene	25	U	10	25	25	ug/L	25	11-Jun-2021 14:24
n-Propylbenzene	25	U	7.5	25	25	ug/L	25	11-Jun-2021 14:24
Naphthalene	25	U	7.5	25	25	ug/L	25	11-Jun-2021 14:24
o-Xylene	25	U	7.5	25	25	ug/L	25	11-Jun-2021 14:24
sec-Butylbenzene	25	U	7.5	25	25	ug/L	25	11-Jun-2021 14:24
Styrene	25	U	7.5	25	25	ug/L	25	11-Jun-2021 14:24
tert-Butylbenzene	25	U	7.5	25	25	ug/L	25	11-Jun-2021 14:24
Tetrachloroethene	25	U	7.5	25	25	ug/L	25	11-Jun-2021 14:24
Toluene	12	U	5.0	12	25	ug/L	25	11-Jun-2021 14:24
trans-1,2-Dichloroethene	12	U	5.0	12	25	ug/L	25	11-Jun-2021 14:24
trans-1,3-Dichloropropene	12	U	5.0	12	25	ug/L	25	11-Jun-2021 14:24
Trichloroethene	**53**		**5.0**	**12**	**25**	**ug/L**	25	11-Jun-2021 14:24
Trichlorofluoromethane	25	U	7.5	25	25	ug/L	25	11-Jun-2021 14:24
Vinyl chloride	**24**	J	**5.0**	**12**	**25**	**ug/L**	25	11-Jun-2021 14:24
Surr: 1,2-Dichloroethane-d4	*93.6*			**0**	*81-118*	*%REC*	*25*	*11-Jun-2021 14:24*
Surr: 4-Bromofluorobenzene	*95.5*			**0**	*85-114*	*%REC*	*25*	*11-Jun-2021 14:24*
Surr: Dibromofluoromethane	*89.7*			**0**	*80-119*	*%REC*	*25*	*11-Jun-2021 14:24*
Surr: Toluene-d8	*102*			**0**	*89-112*	*%REC*	*25*	*11-Jun-2021 14:24*
METALS BY ICPMS BY SW6020A		**Method:SW6020A**				Prep:SW3010A / 16-Jun-2021		Analyst: JHD
Arsenic	**0.00220**	J	**0.000400**	**0.00100**	**0.00500**	**mg/L**	1	17-Jun-2021 11:56
TOTAL ORGANIC CARBON BY E415.1		**Method:E415.1**						Analyst: JAC
Organic Carbon, Total	**119**		**2.50**	**2.50**	**5.00**	**mg/L**	5	08-Jun-2021 18:33
ANIONS BY SW9056A		**Method:SW9056**						Analyst: YP
Chloride	**2,430**		**10.0**	**25.0**	**25.0**	**mg/L**	50	04-Jun-2021 16:55
Nitrogen, Nitrate (As N)	0.500	U	0.150	0.500	0.500	mg/L	5	03-Jun-2021 18:41
Nitrogen, Nitrite (As N)	0.500	U	0.150	0.500	0.500	mg/L	5	03-Jun-2021 18:41
Sulfate	**148**		**1.00**	**2.50**	**2.50**	**mg/L**	5	03-Jun-2021 18:41

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW08_060221
Collection Date: 02-Jun-2021 08:55

ANALYTICAL REPORT
WorkOrder:HS21060181
Lab ID:HS21060181-15
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - DHC/DHB		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	02-Jul-2021 17:44
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUBCA
Subcontract Analysis	See Attached		0	0		NA	1	01-Jul-2021 09:25
SUBCONTRACT ANALYSIS - VOLATILE FATTY ACIDS		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	25-Jun-2021 17:38

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW11_060221
Collection Date: 02-Jun-2021 09:45

ANALYTICAL REPORT
WorkOrder:HS21060181
Lab ID:HS21060181-16
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 18:57
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 18:57
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 18:57
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 18:57
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 18:57
1,1-Dichloroethene	**0.62**	J	**0.20**	**0.50**	**1.0**	**ug/L**	1	07-Jun-2021 18:57
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 18:57
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 18:57
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 18:57
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 18:57
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 18:57
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 18:57
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 18:57
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 18:57
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 18:57
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 18:57
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 18:57
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 18:57
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 18:57
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 18:57
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 18:57
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	07-Jun-2021 18:57
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 18:57
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	07-Jun-2021 18:57
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 18:57
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 18:57
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	07-Jun-2021 18:57
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	07-Jun-2021 18:57
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 18:57
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 18:57
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 18:57
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 18:57
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 18:57
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 18:57
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	07-Jun-2021 18:57
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 18:57
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 18:57
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 18:57
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 18:57

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW11_060221
Collection Date: 02-Jun-2021 09:45

ANALYTICAL REPORT
WorkOrder:HS21060181
Lab ID:HS21060181-16
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 18:57
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 18:57
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	07-Jun-2021 18:57
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 18:57
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 18:57
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 18:57
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 18:57
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	07-Jun-2021 18:57
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 18:57
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	07-Jun-2021 18:57
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	07-Jun-2021 18:57
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 18:57
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 18:57
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 18:57
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 18:57
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 18:57
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 18:57
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 18:57
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 18:57
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 18:57
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 18:57
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 18:57
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 18:57
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 18:57
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 18:57
Surr: 1,2-Dichloroethane-d4	*93.3*			**0**	*81-118*	*%REC*	*1*	*07-Jun-2021 18:57*
Surr: 4-Bromofluorobenzene	*94.9*			**0**	*85-114*	*%REC*	*1*	*07-Jun-2021 18:57*
Surr: Dibromofluoromethane	*89.8*			**0**	*80-119*	*%REC*	*1*	*07-Jun-2021 18:57*
Surr: Toluene-d8	*101*			**0**	*89-112*	*%REC*	*1*	*07-Jun-2021 18:57*
TOTAL ORGANIC CARBON BY E415.1		**Method:E415.1**						Analyst: JAC
Organic Carbon, Total	**11.0**		**0.500**	**0.500**	**1.00**	**mg/L**	1	05-Jun-2021 03:08
ANIONS BY SW9056A		**Method:SW9056**						Analyst: YP
Chloride	**1,790**		**10.0**	**25.0**	**25.0**	**mg/L**	50	04-Jun-2021 17:02
Nitrogen, Nitrate (As N)	0.500	U	0.150	0.500	0.500	mg/L	5	03-Jun-2021 18:49
Nitrogen, Nitrite (As N)	0.500	U	0.150	0.500	0.500	mg/L	5	03-Jun-2021 18:49
Sulfate	**460**		**10.0**	**25.0**	**25.0**	**mg/L**	50	04-Jun-2021 17:02
SUBCONTRACT ANALYSIS - DHC/DHB		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	02-Jul-2021 17:44

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW11_060221
Collection Date: 02-Jun-2021 09:45

ANALYTICAL REPORT
WorkOrder:HS21060181
Lab ID:HS21060181-16
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUBCA
Subcontract Analysis	See Attached		0	0		NA	1	01-Jul-2021 09:25
SUBCONTRACT ANALYSIS - VOLATILE FATTY ACIDS		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	25-Jun-2021 17:38

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: LHSMW07_060221
Collection Date: 02-Jun-2021 10:35

ANALYTICAL REPORT
WorkOrder:HS21060181
Lab ID:HS21060181-17
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 20:21
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 20:21
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 20:21
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 20:21
1,1-Dichloroethane	**5.7**		**0.20**	**0.50**	**1.0**	**ug/L**	1	07-Jun-2021 20:21
1,1-Dichloroethene	**12**		**0.20**	**0.50**	**1.0**	**ug/L**	1	07-Jun-2021 20:21
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 20:21
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 20:21
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 20:21
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 20:21
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 20:21
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 20:21
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 20:21
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 20:21
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 20:21
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 20:21
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 20:21
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 20:21
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 20:21
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 20:21
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 20:21
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	07-Jun-2021 20:21
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 20:21
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	07-Jun-2021 20:21
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 20:21
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 20:21
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	07-Jun-2021 20:21
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	07-Jun-2021 20:21
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 20:21
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 20:21
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 20:21
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 20:21
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 20:21
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 20:21
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	07-Jun-2021 20:21
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 20:21
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 20:21
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 20:21
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 20:21

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: LHSMW07_060221
Collection Date: 02-Jun-2021 10:35

ANALYTICAL REPORT
WorkOrder:HS21060181
Lab ID:HS21060181-17
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 20:21
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 20:21
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	07-Jun-2021 20:21
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 20:21
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 20:21
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 20:21
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 20:21
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	07-Jun-2021 20:21
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 20:21
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	07-Jun-2021 20:21
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	07-Jun-2021 20:21
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 20:21
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 20:21
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 20:21
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 20:21
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 20:21
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 20:21
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 20:21
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 20:21
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 20:21
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 20:21
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 20:21
Trichloroethene	**0.91**	J	**0.20**	**0.50**	**1.0**	**ug/L**	1	07-Jun-2021 20:21
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 20:21
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 20:21
Surr: 1,2-Dichloroethane-d4	*93.0*			**0**	*81-118*	*%REC*	*1*	*07-Jun-2021 20:21*
Surr: 4-Bromofluorobenzene	*97.3*			**0**	*85-114*	*%REC*	*1*	*07-Jun-2021 20:21*
Surr: Dibromofluoromethane	*89.7*			**0**	*80-119*	*%REC*	*1*	*07-Jun-2021 20:21*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*1*	*07-Jun-2021 20:21*
TOTAL ORGANIC CARBON BY E415.1		**Method:E415.1**						Analyst: JAC
Organic Carbon, Total	**7.94**		**0.500**	**0.500**	**1.00**	**mg/L**	1	05-Jun-2021 03:23
ANIONS BY SW9056A		**Method:SW9056**						Analyst: YP
Chloride	**1,760**		**10.0**	**25.0**	**25.0**	**mg/L**	50	04-Jun-2021 17:10
Nitrogen, Nitrate (As N)	0.500	U	0.150	0.500	0.500	mg/L	5	03-Jun-2021 18:56
Nitrogen, Nitrite (As N)	0.500	U	0.150	0.500	0.500	mg/L	5	03-Jun-2021 18:56
Sulfate	**2,720**		**10.0**	**25.0**	**25.0**	**mg/L**	50	04-Jun-2021 17:10
SUBCONTRACT ANALYSIS - DHC/DHB		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	02-Jul-2021 17:44

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc. **ANALYTICAL REPORT**
Project: LHAAP-58 WorkOrder:HS21060181
Sample ID: LHSMW07_060221 Lab ID:HS21060181-17
Collection Date: 02-Jun-2021 10:35 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUBCA
Subcontract Analysis	See Attached		0	0		NA	1	01-Jul-2021 09:25
SUBCONTRACT ANALYSIS - VOLATILE FATTY ACIDS		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	25-Jun-2021 17:38

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW05_060221
Collection Date: 02-Jun-2021 11:30

ANALYTICAL REPORT
WorkOrder:HS21060181
Lab ID:HS21060181-18
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 19:18
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 19:18
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 19:18
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 19:18
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 19:18
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 19:18
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 19:18
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 19:18
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 19:18
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 19:18
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 19:18
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 19:18
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 19:18
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 19:18
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 19:18
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 19:18
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 19:18
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 19:18
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 19:18
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 19:18
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 19:18
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	07-Jun-2021 19:18
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 19:18
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	07-Jun-2021 19:18
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 19:18
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 19:18
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	07-Jun-2021 19:18
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	07-Jun-2021 19:18
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 19:18
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 19:18
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 19:18
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 19:18
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 19:18
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 19:18
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	07-Jun-2021 19:18
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 19:18
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 19:18
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 19:18
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 19:18

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW05_060221
Collection Date: 02-Jun-2021 11:30

ANALYTICAL REPORT
WorkOrder:HS21060181
Lab ID:HS21060181-18
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 19:18
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 19:18
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	07-Jun-2021 19:18
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 19:18
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 19:18
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 19:18
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 19:18
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	07-Jun-2021 19:18
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 19:18
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	07-Jun-2021 19:18
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	07-Jun-2021 19:18
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 19:18
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 19:18
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 19:18
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 19:18
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 19:18
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 19:18
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 19:18
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 19:18
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 19:18
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 19:18
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 19:18
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 19:18
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 19:18
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 19:18
Surr: 1,2-Dichloroethane-d4	*91.3*			**0**	*81-118*	*%REC*	*1*	*07-Jun-2021 19:18*
Surr: 4-Bromofluorobenzene	*97.7*			**0**	*85-114*	*%REC*	*1*	*07-Jun-2021 19:18*
Surr: Dibromofluoromethane	*88.2*			**0**	*80-119*	*%REC*	*1*	*07-Jun-2021 19:18*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*1*	*07-Jun-2021 19:18*

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW22_060221
Collection Date: 02-Jun-2021 12:25

ANALYTICAL REPORT
WorkOrder:HS21060181
Lab ID:HS21060181-19
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 19:39
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 19:39
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 19:39
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 19:39
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 19:39
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 19:39
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 19:39
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 19:39
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 19:39
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 19:39
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 19:39
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 19:39
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 19:39
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 19:39
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 19:39
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 19:39
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 19:39
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 19:39
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 19:39
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 19:39
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 19:39
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	07-Jun-2021 19:39
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 19:39
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	07-Jun-2021 19:39
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 19:39
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 19:39
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	07-Jun-2021 19:39
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	07-Jun-2021 19:39
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 19:39
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 19:39
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 19:39
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 19:39
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 19:39
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 19:39
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	07-Jun-2021 19:39
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 19:39
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 19:39
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 19:39
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 19:39

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

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ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW22_060221
Collection Date: 02-Jun-2021 12:25

ANALYTICAL REPORT
WorkOrder:HS21060181
Lab ID:HS21060181-19
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 19:39
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 19:39
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	07-Jun-2021 19:39
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 19:39
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 19:39
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 19:39
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 19:39
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	07-Jun-2021 19:39
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 19:39
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	07-Jun-2021 19:39
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	07-Jun-2021 19:39
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 19:39
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 19:39
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 19:39
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 19:39
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 19:39
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 19:39
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 19:39
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 19:39
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 19:39
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 19:39
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 19:39
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 19:39
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 19:39
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 19:39
Surr: 1,2-Dichloroethane-d4	*92.3*			**0**	*81-118*	*%REC*	*1*	*07-Jun-2021 19:39*
Surr: 4-Bromofluorobenzene	*94.5*			**0**	*85-114*	*%REC*	*1*	*07-Jun-2021 19:39*
Surr: Dibromofluoromethane	*89.6*			**0**	*80-119*	*%REC*	*1*	*07-Jun-2021 19:39*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*1*	*07-Jun-2021 19:39*

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW12_060221
Collection Date: 02-Jun-2021 12:10

ANALYTICAL REPORT
WorkOrder:HS21060181
Lab ID:HS21060181-20
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 20:00
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 20:00
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 20:00
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 20:00
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 20:00
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 20:00
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 20:00
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 20:00
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 20:00
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 20:00
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 20:00
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 20:00
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 20:00
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 20:00
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 20:00
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 20:00
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 20:00
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 20:00
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 20:00
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 20:00
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 20:00
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	07-Jun-2021 20:00
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 20:00
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	07-Jun-2021 20:00
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 20:00
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 20:00
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	07-Jun-2021 20:00
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	07-Jun-2021 20:00
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 20:00
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 20:00
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 20:00
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 20:00
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 20:00
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 20:00
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	07-Jun-2021 20:00
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	07-Jun-2021 20:00
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 20:00
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 20:00
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 20:00

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW12_060221
Collection Date: 02-Jun-2021 12:10

ANALYTICAL REPORT
WorkOrder:HS21060181
Lab ID:HS21060181-20
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 20:00
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 20:00
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	07-Jun-2021 20:00
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 20:00
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 20:00
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 20:00
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 20:00
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	07-Jun-2021 20:00
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 20:00
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	07-Jun-2021 20:00
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	07-Jun-2021 20:00
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	07-Jun-2021 20:00
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 20:00
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 20:00
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 20:00
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 20:00
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 20:00
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 20:00
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 20:00
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 20:00
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 20:00
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 20:00
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 20:00
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	07-Jun-2021 20:00
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	07-Jun-2021 20:00
Surr: 1,2-Dichloroethane-d4	*90.8*			**0**	*81-118*	*%REC*	*1*	*07-Jun-2021 20:00*
Surr: 4-Bromofluorobenzene	*97.6*			**0**	*85-114*	*%REC*	*1*	*07-Jun-2021 20:00*
Surr: Dibromofluoromethane	*88.0*			**0**	*80-119*	*%REC*	*1*	*07-Jun-2021 20:00*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*1*	*07-Jun-2021 20:00*

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: Trip Blank
Collection Date: 02-Jun-2021 00:00

ANALYTICAL REPORT
WorkOrder:HS21060181
Lab ID:HS21060181-21
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 13:42
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 13:42
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	11-Jun-2021 13:42
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 13:42
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 13:42
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 13:42
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 13:42
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	11-Jun-2021 13:42
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	11-Jun-2021 13:42
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	11-Jun-2021 13:42
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 13:42
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 13:42
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 13:42
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	11-Jun-2021 13:42
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 13:42
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	11-Jun-2021 13:42
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 13:42
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	11-Jun-2021 13:42
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 13:42
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	11-Jun-2021 13:42
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 13:42
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	11-Jun-2021 13:42
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 13:42
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	11-Jun-2021 13:42
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	11-Jun-2021 13:42
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 13:42
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	11-Jun-2021 13:42
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	11-Jun-2021 13:42
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 13:42
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	11-Jun-2021 13:42
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 13:42
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 13:42
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	11-Jun-2021 13:42
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	11-Jun-2021 13:42
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	11-Jun-2021 13:42
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	11-Jun-2021 13:42
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 13:42
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 13:42
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 13:42

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

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ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: Trip Blank
Collection Date: 02-Jun-2021 00:00

ANALYTICAL REPORT
WorkOrder:HS21060181
Lab ID:HS21060181-21
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 13:42
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 13:42
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	11-Jun-2021 13:42
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 13:42
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 13:42
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 13:42
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 13:42
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	11-Jun-2021 13:42
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 13:42
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	11-Jun-2021 13:42
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	11-Jun-2021 13:42
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	11-Jun-2021 13:42
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 13:42
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 13:42
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 13:42
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 13:42
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 13:42
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 13:42
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 13:42
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 13:42
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 13:42
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 13:42
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 13:42
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 13:42
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 13:42
Surr: 1,2-Dichloroethane-d4	*92.1*			**0**	*81-118*	*%REC*	*1*	*11-Jun-2021 13:42*
Surr: 4-Bromofluorobenzene	*96.6*			**0**	*85-114*	*%REC*	*1*	*11-Jun-2021 13:42*
Surr: Dibromofluoromethane	*89.2*			**0**	*80-119*	*%REC*	*1*	*11-Jun-2021 13:42*
Surr: Toluene-d8	*105*			**0**	*89-112*	*%REC*	*1*	*11-Jun-2021 13:42*

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

Weight / Prep Log

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS21060181

Batch ID: 166919 **Start Date:** 16 Jun 2021 10:00 **End Date:** 16 Jun 2021 14:00
Method: WATER - SW3010A **Prep Code:** 3010A

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS21060181-01		10 (mL)	10 (mL)	1	120 plastic HNO3
HS21060181-02		10 (mL)	10 (mL)	1	120 plastic HNO3
HS21060181-12		10 (mL)	10 (mL)	1	120 plastic HNO3
HS21060181-13		10 (mL)	10 (mL)	1	120 plastic HNO3
HS21060181-14		1 (mL)	10 (mL)	10	120 plastic HNO3
HS21060181-15		10 (mL)	10 (mL)	1	120 plastic HNO3

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS21060181

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: 166919 (0)	**Test Name :** METALS BY ICPMS BY SW6020A				**Matrix:** Groundwater	
HS21060181-01	35AWW01_060121	01 Jun 2021 07:45		16 Jun 2021 14:00	17 Jun 2021 11:38	1
HS21060181-02	35AWW01_060121_a	01 Jun 2021 07:45		16 Jun 2021 14:00	17 Jun 2021 11:40	1
HS21060181-12	35AWW09_060221	02 Jun 2021 07:10		16 Jun 2021 14:00	17 Jun 2021 11:50	1
HS21060181-13	35AWW09_060221_a	02 Jun 2021 07:10		16 Jun 2021 14:00	17 Jun 2021 11:52	1
HS21060181-14	03WW01_060221	02 Jun 2021 08:05		16 Jun 2021 14:00	17 Jun 2021 11:55	1
HS21060181-15	35AWW08_060221	02 Jun 2021 08:55		16 Jun 2021 14:00	17 Jun 2021 11:56	1
Batch ID: R384952 (0)	**Test Name :** ANIONS BY SW9056A				**Matrix:** Groundwater	
HS21060181-12	35AWW09_060221	02 Jun 2021 07:10			03 Jun 2021 18:03	5
HS21060181-13	35AWW09_060221_a	02 Jun 2021 07:10			03 Jun 2021 18:11	5
HS21060181-14	03WW01_060221	02 Jun 2021 08:05			03 Jun 2021 18:34	5
HS21060181-15	35AWW08_060221	02 Jun 2021 08:55			03 Jun 2021 18:41	5
HS21060181-16	35AWW11_060221	02 Jun 2021 09:45			03 Jun 2021 18:49	5
HS21060181-17	LHSMW07_060221	02 Jun 2021 10:35			03 Jun 2021 18:56	5
Batch ID: R385033 (0)	**Test Name :** ANIONS BY SW9056A				**Matrix:** Groundwater	
HS21060181-12	35AWW09_060221	02 Jun 2021 07:10			04 Jun 2021 15:10	50
HS21060181-13	35AWW09_060221_a	02 Jun 2021 07:10			04 Jun 2021 15:18	50
HS21060181-14	03WW01_060221	02 Jun 2021 08:05			04 Jun 2021 16:47	50
HS21060181-15	35AWW08_060221	02 Jun 2021 08:55			04 Jun 2021 16:55	50
HS21060181-16	35AWW11_060221	02 Jun 2021 09:45			04 Jun 2021 17:02	50
HS21060181-17	LHSMW07_060221	02 Jun 2021 10:35			04 Jun 2021 17:10	50
Batch ID: R385048 (0)	**Test Name :** TOTAL ORGANIC CARBON BY E415.1				**Matrix:** Groundwater	
HS21060181-12	35AWW09_060221	02 Jun 2021 07:10			05 Jun 2021 01:57	1
HS21060181-13	35AWW09_060221_a	02 Jun 2021 07:10			05 Jun 2021 02:26	1
HS21060181-16	35AWW11_060221	02 Jun 2021 09:45			05 Jun 2021 03:08	1
HS21060181-17	LHSMW07_060221	02 Jun 2021 10:35			05 Jun 2021 03:23	1

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS21060181

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R385121 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Groundwater	
HS21060181-01	35AWW01_060121	01 Jun 2021 07:45			07 Jun 2021 15:26	1
HS21060181-02	35AWW01_060121_a	01 Jun 2021 07:45			07 Jun 2021 15:47	1
HS21060181-03	35AWW13_060121	01 Jun 2021 08:30			07 Jun 2021 16:08	1
HS21060181-04	35AWW10_060121	01 Jun 2021 09:10			07 Jun 2021 12:59	1
HS21060181-05	35AWW15_060121	01 Jun 2021 09:55			07 Jun 2021 16:29	1
HS21060181-07	35AWW18_060121	01 Jun 2021 11:20			07 Jun 2021 16:51	1
HS21060181-08	35AWW24_060121	01 Jun 2021 12:05			07 Jun 2021 17:12	1
HS21060181-09	35AWW24_060121_a	01 Jun 2021 12:05			07 Jun 2021 17:33	1
HS21060181-10	35AWW21_060121	01 Jun 2021 12:50			07 Jun 2021 17:54	1
HS21060181-11	35AWW14_060121	01 Jun 2021 13:00			07 Jun 2021 18:15	1
HS21060181-12	35AWW09_060221	02 Jun 2021 07:10			07 Jun 2021 13:20	1
HS21060181-13	35AWW09_060221_a	02 Jun 2021 07:10			07 Jun 2021 13:41	1
HS21060181-14	03WW01_060221	02 Jun 2021 08:05			07 Jun 2021 18:36	1
HS21060181-16	35AWW11_060221	02 Jun 2021 09:45			07 Jun 2021 18:57	1
HS21060181-17	LHSMW07_060221	02 Jun 2021 10:35			07 Jun 2021 20:21	1
HS21060181-18	35AWW05_060221	02 Jun 2021 11:30			07 Jun 2021 19:18	1
HS21060181-19	35AWW22_060221	02 Jun 2021 12:25			07 Jun 2021 19:39	1
HS21060181-20	35AWW12_060221	02 Jun 2021 12:10			07 Jun 2021 20:00	1
Batch ID: R385224 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Groundwater	
HS21060181-12	35AWW09_060221	02 Jun 2021 07:10			08 Jun 2021 15:49	10
HS21060181-13	35AWW09_060221_a	02 Jun 2021 07:10			08 Jun 2021 16:10	10
Batch ID: R385254 (0)	**Test Name :** TOTAL ORGANIC CARBON BY E415.1				**Matrix:** Groundwater	
HS21060181-14	03WW01_060221	02 Jun 2021 08:05			08 Jun 2021 18:21	5
HS21060181-15	35AWW08_060221	02 Jun 2021 08:55			08 Jun 2021 18:33	5
Batch ID: R385452 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Groundwater	
HS21060181-06	35AWW16_060121	01 Jun 2021 10:35			11 Jun 2021 14:03	1
HS21060181-15	35AWW08_060221	02 Jun 2021 08:55			11 Jun 2021 14:24	25
HS21060181-21	Trip Blank	02 Jun 2021 00:00			11 Jun 2021 13:42	1
Batch ID: R386387 (0)	**Test Name :** SUBCONTRACT ANALYSIS - VOLATILE FATTY ACIDS				**Matrix:** Groundwater	
HS21060181-12	35AWW09_060221	02 Jun 2021 07:10			25 Jun 2021 17:38	1
HS21060181-13	35AWW09_060221_a	02 Jun 2021 07:10			25 Jun 2021 17:38	1
HS21060181-14	03WW01_060221	02 Jun 2021 08:05			25 Jun 2021 17:38	1
HS21060181-15	35AWW08_060221	02 Jun 2021 08:55			25 Jun 2021 17:38	1
HS21060181-16	35AWW11_060221	02 Jun 2021 09:45			25 Jun 2021 17:38	1
HS21060181-17	LHSMW07_060221	02 Jun 2021 10:35			25 Jun 2021 17:38	1

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS21060181

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R386731 (0)	**Test Name :** SUBCONTRACT ANALYSIS - RSK				**Matrix:** Groundwater	
HS21060181-12	35AWW09_060221	02 Jun 2021 07:10			01 Jul 2021 09:25	1
HS21060181-13	35AWW09_060221_a	02 Jun 2021 07:10			01 Jul 2021 09:25	1
HS21060181-14	03WW01_060221	02 Jun 2021 08:05			01 Jul 2021 09:25	1
HS21060181-15	35AWW08_060221	02 Jun 2021 08:55			01 Jul 2021 09:25	1
HS21060181-16	35AWW11_060221	02 Jun 2021 09:45			01 Jul 2021 09:25	1
HS21060181-17	LHSMW07_060221	02 Jun 2021 10:35			01 Jul 2021 09:25	1
Batch ID: R386900 (0)	**Test Name :** SUBCONTRACT ANALYSIS - DHC/DHB				**Matrix:** Groundwater	
HS21060181-14	03WW01_060221	02 Jun 2021 08:05			02 Jul 2021 17:44	1
HS21060181-15	35AWW08_060221	02 Jun 2021 08:55			02 Jul 2021 17:44	1
HS21060181-16	35AWW11_060221	02 Jun 2021 09:45			02 Jul 2021 17:44	1
HS21060181-17	LHSMW07_060221	02 Jun 2021 10:35			02 Jul 2021 17:44	1

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS21060181

QC BATCH REPORT

Batch ID: 166919 (0) **Instrument: ICPMS06** **Method: METALS BY ICPMS BY SW6020A**

MBLK Sample ID: **MBLK-166919** Units: **mg/L** Analysis Date: **17-Jun-2021 11:22**
Client ID: Run ID: **ICPMS06_385722** SeqNo: **6140506** PrepDate: **16-Jun-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.00100	0.00500								U

LCS Sample ID: **LCS-166919** Units: **mg/L** Analysis Date: **17-Jun-2021 11:24**
Client ID: Run ID: **ICPMS06_385722** SeqNo: **6140507** PrepDate: **16-Jun-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.04696	0.00500	0.05	0	93.9	84 - 116				

MS Sample ID: **HS21060700-02MS** Units: **mg/L** Analysis Date: **17-Jun-2021 11:30**
Client ID: Run ID: **ICPMS06_385722** SeqNo: **6140510** PrepDate: **16-Jun-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.04971	0.00500	0.05	0.000489	98.4	84 - 116				

MSD Sample ID: **HS21060700-02MSD** Units: **mg/L** Analysis Date: **17-Jun-2021 11:32**
Client ID: Run ID: **ICPMS06_385722** SeqNo: **6140511** PrepDate: **16-Jun-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.05209	0.00500	0.05	0.000489	103	84 - 116	0.04971	4.67	20	

PDS Sample ID: **HS21060700-02PDS** Units: **mg/L** Analysis Date: **17-Jun-2021 11:34**
Client ID: Run ID: **ICPMS06_385722** SeqNo: **6140512** PrepDate: **16-Jun-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.1138	0.00500	0.1	0.000489	113	80 - 120				

SD Sample ID: **HS21060700-02SD** Units: **mg/L** Analysis Date: **17-Jun-2021 11:28**
Client ID: Run ID: **ICPMS06_385722** SeqNo: **6140509** PrepDate: **16-Jun-2021** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Arsenic	0.00500	0.0250					0.000489	0	10	U

The following samples were analyzed in this batch: HS21060181-01 HS21060181-02 HS21060181-12 HS21060181-13 HS21060181-14 HS21060181-15

Revision: 1

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ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS21060181

QC BATCH REPORT

Batch ID: R385121 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MBLK Sample ID: **VBLKW-210607** Units: **ug/L** Analysis Date: **07-Jun-2021 12:38**
Client ID: Run ID: **VOA6_385121** SeqNo: **6126488** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1.0	1.0								U
1,1,1-Trichloroethane	0.50	1.0								U
1,1,2,2-Tetrachloroethane	1.0	1.0								U
1,1,2-Trichloroethane	1.0	1.0								U
1,1-Dichloroethane	0.50	1.0								U
1,1-Dichloroethene	0.50	1.0								U
1,1-Dichloropropene	1.0	1.0								U
1,2,3-Trichlorobenzene	1.0	1.0								U
1,2,3-Trichloropropane	1.0	1.0								U
1,2,4-Trichlorobenzene	1.0	1.0								U
1,2,4-Trimethylbenzene	1.0	1.0								U
1,2-Dibromo-3-chloropropane	0.50	1.0								U
1,2-Dibromoethane	0.50	1.0								U
1,2-Dichlorobenzene	1.0	1.0								U
1,2-Dichloroethane	0.50	1.0								U
1,2-Dichloropropane	1.0	1.0								U
1,3,5-Trimethylbenzene	1.0	1.0								U
1,3-Dichlorobenzene	1.0	1.0								U
1,3-Dichloropropane	1.0	1.0								U
1,4-Dichlorobenzene	1.0	1.0								U
2,2-Dichloropropane	0.50	1.0								U
2-Butanone	1.0	2.0								U
2-Chlorotoluene	1.0	1.0								U
2-Hexanone	2.0	2.0								U
4-Chlorotoluene	1.0	1.0								U
4-Isopropyltoluene	1.0	1.0								U
4-Methyl-2-pentanone	2.0	2.0								U
Acetone	2.0	2.0								U
Benzene	0.50	1.0								U
Bromobenzene	1.0	1.0								U
Bromochloromethane	0.50	1.0								U
Bromodichloromethane	0.50	1.0								U
Bromoform	1.0	1.0								U
Bromomethane	1.0	1.0								U

Revision: 1

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ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS21060181

QC BATCH REPORT

Batch ID: R385121 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MBLK Sample ID: **VBLKW-210607** Units: **ug/L** Analysis Date: **07-Jun-2021 12:38**
Client ID: Run ID: **VOA6_385121** SeqNo: **6126488** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	2.0	2.0								U
Carbon tetrachloride	1.0	1.0								U
Chlorobenzene	1.0	1.0								U
Chloroethane	1.0	1.0								U
Chloroform	0.50	1.0								U
Chloromethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
cis-1,3-Dichloropropene	0.50	1.0								U
Dibromochloromethane	1.0	1.0								U
Dibromomethane	0.50	1.0								U
Dichlorodifluoromethane	1.0	1.0								U
Ethylbenzene	1.0	1.0								U
Hexachlorobutadiene	1.0	1.0								U
Isopropylbenzene	1.0	1.0								U
m,p-Xylene	1.0	2.0								U
Methylene chloride	2.0	2.0								U
Naphthalene	1.0	1.0								U
n-Butylbenzene	1.0	1.0								U
n-Propylbenzene	1.0	1.0								U
o-Xylene	1.0	1.0								U
sec-Butylbenzene	1.0	1.0								U
Styrene	1.0	1.0								U
tert-Butylbenzene	1.0	1.0								U
Tetrachloroethene	1.0	1.0								U
Toluene	0.50	1.0								U
trans-1,2-Dichloroethene	0.50	1.0								U
trans-1,3-Dichloropropene	0.50	1.0								U
Trichloroethene	0.50	1.0								U
Trichlorofluoromethane	1.0	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*46.46*	*1.0*	*50*	*0*	*92.9*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*50.22*	*1.0*	*50*	*0*	*100*	*85 - 114*				
Surr: Dibromofluoromethane	*44.51*	*1.0*	*50*	*0*	*89.0*	*80 - 119*				
Surr: Toluene-d8	*51.13*	*1.0*	*50*	*0*	*102*	*89 - 112*				

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS21060181

QC BATCH REPORT

Batch ID: R385121 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

LCS Sample ID: **VLCSW-210607** Units: **ug/L** Analysis Date: **07-Jun-2021 11:35**
Client ID: Run ID: **VOA6_385121** SeqNo: **6126487** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	21.42	1.0	20	0	107	78 - 124				
1,1,1-Trichloroethane	20.38	1.0	20	0	102	74 - 131				
1,1,2,2-Tetrachloroethane	23.24	1.0	20	0	116	71 - 121				
1,1,2-Trichloroethane	21.28	1.0	20	0	106	80 - 119				
1,1-Dichloroethane	19.51	1.0	20	0	97.5	77 - 125				
1,1-Dichloroethene	18.24	1.0	20	0	91.2	71 - 131				
1,1-Dichloropropene	22.58	1.0	20	0	113	78 - 125				
1,2,3-Trichlorobenzene	28.27	1.0	20	0	141	69 - 129				S
1,2,3-Trichloropropane	21.81	1.0	20	0	109	73 - 122				
1,2,4-Trichlorobenzene	27.86	1.0	20	0	139	69 - 130				S
1,2,4-Trimethylbenzene	21.44	1.0	20	0	107	76 - 124				
1,2-Dibromo-3-chloropropane	24.8	1.0	20	0	124	62 - 128				
1,2-Dibromoethane	21.35	1.0	20	0	107	77 - 121				
1,2-Dichlorobenzene	21.57	1.0	20	0	108	80 - 119				
1,2-Dichloroethane	22.34	1.0	20	0	112	73 - 128				
1,2-Dichloropropane	21.4	1.0	20	0	107	78 - 122				
1,3,5-Trimethylbenzene	21.28	1.0	20	0	106	75 - 124				
1,3-Dichlorobenzene	22.03	1.0	20	0	110	80 - 119				
1,3-Dichloropropane	21.2	1.0	20	0	106	80 - 119				
1,4-Dichlorobenzene	21.21	1.0	20	0	106	79 - 118				
2,2-Dichloropropane	20.84	1.0	20	0	104	60 - 139				
2-Butanone	38.72	2.0	40	0	96.8	56 - 143				
2-Chlorotoluene	21.67	1.0	20	0	108	79 - 122				
2-Hexanone	42.6	2.0	40	0	106	57 - 139				
4-Chlorotoluene	20.78	1.0	20	0	104	78 - 122				
4-Isopropyltoluene	22.61	1.0	20	0	113	77 - 127				
4-Methyl-2-pentanone	40.94	2.0	40	0	102	67 - 130				
Acetone	33.91	2.0	40	0	84.8	39 - 160				
Benzene	21.39	1.0	20	0	107	79 - 120				
Bromobenzene	22.64	1.0	20	0	113	80 - 120				
Bromochloromethane	20.23	1.0	20	0	101	78 - 123				
Bromodichloromethane	21.29	1.0	20	0	106	79 - 125				
Bromoform	21.84	1.0	20	0	109	66 - 130				
Bromomethane	21.95	1.0	20	0	110	53 - 141				

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS21060181

QC BATCH REPORT

Batch ID: R385121 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

LCS Sample ID: **VLCSW-210607** Units: **ug/L** Analysis Date: **07-Jun-2021 11:35**
Client ID: Run ID: **VOA6_385121** SeqNo: **6126487** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	38.14	2.0	40	0	95.3	64 - 133				
Carbon tetrachloride	22.23	1.0	20	0	111	72 - 136				
Chlorobenzene	20.1	1.0	20	0	101	82 - 118				
Chloroethane	21.17	1.0	20	0	106	60 - 138				
Chloroform	19.6	1.0	20	0	98.0	79 - 124				
Chloromethane	20.21	1.0	20	0	101	50 - 139				
cis-1,2-Dichloroethene	20.02	1.0	20	0	100	78 - 123				
cis-1,3-Dichloropropene	21.92	1.0	20	0	110	75 - 124				
Dibromochloromethane	21.46	1.0	20	0	107	74 - 126				
Dibromomethane	21.76	1.0	20	0	109	79 - 123				
Dichlorodifluoromethane	24.42	1.0	20	0	122	32 - 152				
Ethylbenzene	22.15	1.0	20	0	111	79 - 121				
Hexachlorobutadiene	31.58	1.0	20	0	158	66 - 134				S
Isopropylbenzene	21.87	1.0	20	0	109	72 - 131				
m,p-Xylene	42.58	2.0	40	0	106	80 - 121				
Methylene chloride	20.03	2.0	20	0	100	74 - 124				
Naphthalene	26.65	1.0	20	0	133	61 - 128				S
n-Butylbenzene	22.87	1.0	20	0	114	75 - 128				
n-Propylbenzene	21.78	1.0	20	0	109	76 - 126				
o-Xylene	21.06	1.0	20	0	105	78 - 122				
sec-Butylbenzene	22.75	1.0	20	0	114	77 - 126				
Styrene	21.1	1.0	20	0	106	78 - 123				
tert-Butylbenzene	22.2	1.0	20	0	111	78 - 124				
Tetrachloroethene	23.42	1.0	20	0	117	74 - 129				
Toluene	20.21	1.0	20	0	101	80 - 121				
trans-1,2-Dichloroethene	19.42	1.0	20	0	97.1	75 - 124				
trans-1,3-Dichloropropene	22.36	1.0	20	0	112	73 - 127				
Trichloroethene	23	1.0	20	0	115	79 - 123				
Trichlorofluoromethane	19.37	1.0	20	0	96.9	65 - 141				
Vinyl chloride	20.1	1.0	20	0	101	58 - 137				
Surr: 1,2-Dichloroethane-d4	*50.81*	*1.0*	*50*	*0*	*102*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*48.66*	*1.0*	*50*	*0*	*97.3*	*85 - 114*				
Surr: Dibromofluoromethane	*47.32*	*1.0*	*50*	*0*	*94.6*	*80 - 119*				
Surr: Toluene-d8	*46.47*	*1.0*	*50*	*0*	*92.9*	*89 - 112*				

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS21060181

QC BATCH REPORT

Batch ID: R385121 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS21060181-04MS** Units: **ug/L** Analysis Date: **07-Jun-2021 14:02**
Client ID: **35AWW10_060121** Run ID: **VOA6_385121** SeqNo: **6126492** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	19.62	1.0	20	0	98.1	78 - 124				
1,1,1-Trichloroethane	16.97	1.0	20	0	84.9	74 - 131				
1,1,2,2-Tetrachloroethane	22.49	1.0	20	0	112	71 - 121				
1,1,2-Trichloroethane	19	1.0	20	0	95.0	80 - 119				
1,1-Dichloroethane	15.55	1.0	20	0	77.8	77 - 125				
1,1-Dichloroethene	15.45	1.0	20	0	77.3	71 - 131				
1,1-Dichloropropene	20.04	1.0	20	0	100	78 - 125				
1,2,3-Trichlorobenzene	23.72	1.0	20	0	119	69 - 129				
1,2,3-Trichloropropane	20.32	1.0	20	0	102	73 - 122				
1,2,4-Trichlorobenzene	25.65	1.0	20	0	128	69 - 130				
1,2,4-Trimethylbenzene	21.72	1.0	20	0	109	76 - 124				
1,2-Dibromo-3-chloropropane	22.53	1.0	20	0	113	62 - 128				
1,2-Dibromoethane	18.79	1.0	20	0	94.0	77 - 121				
1,2-Dichlorobenzene	21	1.0	20	0	105	80 - 119				
1,2-Dichloroethane	18.15	1.0	20	0	90.8	73 - 128				
1,2-Dichloropropane	17.85	1.0	20	0	89.3	78 - 122				
1,3,5-Trimethylbenzene	22.24	1.0	20	0	111	75 - 124				
1,3-Dichlorobenzene	21.67	1.0	20	0	108	80 - 119				
1,3-Dichloropropane	18.89	1.0	20	0	94.5	80 - 119				
1,4-Dichlorobenzene	21.29	1.0	20	0	106	79 - 118				
2,2-Dichloropropane	16.7	1.0	20	0	83.5	60 - 139				
2-Butanone	29.59	2.0	40	0	74.0	56 - 143				
2-Chlorotoluene	22.11	1.0	20	0	111	79 - 122				
2-Hexanone	37.32	2.0	40	0	93.3	57 - 139				
4-Chlorotoluene	20.77	1.0	20	0	104	78 - 122				
4-Isopropyltoluene	23.72	1.0	20	0	119	77 - 127				
4-Methyl-2-pentanone	36.32	2.0	40	0	90.8	67 - 130				
Acetone	25.13	2.0	40	0	62.8	39 - 160				
Benzene	18.25	1.0	20	0	91.2	79 - 120				
Bromobenzene	22.21	1.0	20	0	111	80 - 120				
Bromochloromethane	15.82	1.0	20	0	79.1	78 - 123				
Bromodichloromethane	18.24	1.0	20	0	91.2	79 - 125				
Bromoform	19.13	1.0	20	0	95.6	66 - 130				
Bromomethane	17.55	1.0	20	0	87.7	53 - 141				

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS21060181

QC BATCH REPORT

Batch ID: R385121 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS21060181-04MS** Units: **ug/L** Analysis Date: **07-Jun-2021 14:02**
Client ID: **35AWW10_060121** Run ID: **VOA6_385121** SeqNo: **6126492** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	30.93	2.0	40	0	77.3	64 - 133				
Carbon tetrachloride	20.4	1.0	20	0	102	72 - 136				
Chlorobenzene	18.77	1.0	20	0	93.9	82 - 118				
Chloroethane	13.8	1.0	20	0	69.0	60 - 138				
Chloroform	15.64	1.0	20	0	78.2	79 - 124				S
Chloromethane	13.14	1.0	20	0	65.7	50 - 139				
cis-1,2-Dichloroethene	15.95	1.0	20	0	79.7	78 - 123				
cis-1,3-Dichloropropene	18.41	1.0	20	0	92.0	75 - 124				
Dibromochloromethane	19.64	1.0	20	0	98.2	74 - 126				
Dibromomethane	18	1.0	20	0	90.0	79 - 123				
Dichlorodifluoromethane	14.31	1.0	20	0	71.6	32 - 152				
Ethylbenzene	20.96	1.0	20	0	105	79 - 121				
Hexachlorobutadiene	30.65	1.0	20	0	153	66 - 134				S
Isopropylbenzene	21.05	1.0	20	0	105	72 - 131				
m,p-Xylene	40.22	2.0	40	0	101	80 - 121				
Methylene chloride	15.21	2.0	20	0	76.1	74 - 124				
Naphthalene	21.8	1.0	20	0	109	61 - 128				
n-Butylbenzene	23.75	1.0	20	0	119	75 - 128				
n-Propylbenzene	22.75	1.0	20	0	114	76 - 126				
o-Xylene	19.71	1.0	20	0	98.5	78 - 122				
sec-Butylbenzene	23.84	1.0	20	0	119	77 - 126				
Styrene	19.39	1.0	20	0	97.0	78 - 123				
tert-Butylbenzene	23.8	1.0	20	0	119	78 - 124				
Tetrachloroethene	24.38	1.0	20	0	122	74 - 129				
Toluene	18.97	1.0	20	0	94.9	80 - 121				
trans-1,2-Dichloroethene	15.77	1.0	20	0	78.8	75 - 124				
trans-1,3-Dichloropropene	18.3	1.0	20	0	91.5	73 - 127				
Trichloroethene	20.88	1.0	20	0	104	79 - 123				
Trichlorofluoromethane	16.17	1.0	20	0	80.9	65 - 141				
Vinyl chloride	14.51	1.0	20	0	72.6	58 - 137				
Surr: 1,2-Dichloroethane-d4	*45.49*	*1.0*	*50*	*0*	*91.0*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*48.34*	*1.0*	*50*	*0*	*96.7*	*85 - 114*				
Surr: Dibromofluoromethane	*44.48*	*1.0*	*50*	*0*	*89.0*	*80 - 119*				
Surr: Toluene-d8	*52.16*	*1.0*	*50*	*0*	*104*	*89 - 112*				

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS21060181

QC BATCH REPORT

Batch ID: R385121 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS21060181-04MSD** Units: **ug/L** Analysis Date: **07-Jun-2021 14:23**
Client ID: **35AWW10_060121** Run ID: **VOA6_385121** SeqNo: **6126493** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	18.34	1.0	20	0	91.7	78 - 124	19.62	6.78	20	
1,1,1-Trichloroethane	15.83	1.0	20	0	79.2	74 - 131	16.97	6.95	20	
1,1,2,2-Tetrachloroethane	19.59	1.0	20	0	98.0	71 - 121	22.49	13.8	20	
1,1,2-Trichloroethane	17.75	1.0	20	0	88.7	80 - 119	19	6.82	20	
1,1-Dichloroethane	14.81	1.0	20	0	74.1	77 - 125	15.55	4.87	20	S
1,1-Dichloroethene	14.61	1.0	20	0	73.1	71 - 131	15.45	5.57	20	
1,1-Dichloropropene	18.37	1.0	20	0	91.9	78 - 125	20.04	8.69	20	
1,2,3-Trichlorobenzene	23.51	1.0	20	0	118	69 - 129	23.72	0.889	20	
1,2,3-Trichloropropane	18.12	1.0	20	0	90.6	73 - 122	20.32	11.4	20	
1,2,4-Trichlorobenzene	22.27	1.0	20	0	111	69 - 130	25.65	14.1	20	
1,2,4-Trimethylbenzene	18.48	1.0	20	0	92.4	76 - 124	21.72	16.1	20	
1,2-Dibromo-3-chloropropane	20.57	1.0	20	0	103	62 - 128	22.53	9.11	20	
1,2-Dibromoethane	17.92	1.0	20	0	89.6	77 - 121	18.79	4.72	20	
1,2-Dichlorobenzene	18.17	1.0	20	0	90.9	80 - 119	21	14.4	20	
1,2-Dichloroethane	17.88	1.0	20	0	89.4	73 - 128	18.15	1.48	20	
1,2-Dichloropropane	17.51	1.0	20	0	87.6	78 - 122	17.85	1.91	20	
1,3,5-Trimethylbenzene	18.7	1.0	20	0	93.5	75 - 124	22.24	17.3	20	
1,3-Dichlorobenzene	18.71	1.0	20	0	93.6	80 - 119	21.67	14.7	20	
1,3-Dichloropropane	17.93	1.0	20	0	89.6	80 - 119	18.89	5.25	20	
1,4-Dichlorobenzene	18.58	1.0	20	0	92.9	79 - 118	21.29	13.6	20	
2,2-Dichloropropane	16.23	1.0	20	0	81.1	60 - 139	16.7	2.87	20	
2-Butanone	29.7	2.0	40	0	74.3	56 - 143	29.59	0.379	20	
2-Chlorotoluene	18.67	1.0	20	0	93.4	79 - 122	22.11	16.9	20	
2-Hexanone	36.43	2.0	40	0	91.1	57 - 139	37.32	2.42	20	
4-Chlorotoluene	17.85	1.0	20	0	89.2	78 - 122	20.77	15.1	20	
4-Isopropyltoluene	19.93	1.0	20	0	99.7	77 - 127	23.72	17.3	20	
4-Methyl-2-pentanone	34.9	2.0	40	0	87.3	67 - 130	36.32	3.97	20	
Acetone	24.17	2.0	40	0	60.4	39 - 160	25.13	3.92	20	
Benzene	17.23	1.0	20	0	86.2	79 - 120	18.25	5.73	20	
Bromobenzene	18.95	1.0	20	0	94.7	80 - 120	22.21	15.8	20	
Bromochloromethane	15.31	1.0	20	0	76.5	78 - 123	15.82	3.3	20	S
Bromodichloromethane	17.09	1.0	20	0	85.4	79 - 125	18.24	6.55	20	
Bromoform	18.58	1.0	20	0	92.9	66 - 130	19.13	2.93	20	
Bromomethane	15.96	1.0	20	0	79.8	53 - 141	17.55	9.48	20	

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS21060181

QC BATCH REPORT

Batch ID: R385121 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS21060181-04MSD** Units: **ug/L** Analysis Date: **07-Jun-2021 14:23**
Client ID: **35AWW10_060121** Run ID: **VOA6_385121** SeqNo: **6126493** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Carbon disulfide	28.88	2.0	40	0	72.2	64 - 133	30.93	6.84	20	
Carbon tetrachloride	19	1.0	20	0	95.0	72 - 136	20.4	7.1	20	
Chlorobenzene	17.22	1.0	20	0	86.1	82 - 118	18.77	8.62	20	
Chloroethane	13.22	1.0	20	0	66.1	60 - 138	13.8	4.3	20	
Chloroform	14.89	1.0	20	0	74.4	79 - 124	15.64	4.93	20	S
Chloromethane	12.55	1.0	20	0	62.7	50 - 139	13.14	4.6	20	
cis-1,2-Dichloroethene	15.74	1.0	20	0	78.7	78 - 123	15.95	1.32	20	
cis-1,3-Dichloropropene	17.53	1.0	20	0	87.7	75 - 124	18.41	4.85	20	
Dibromochloromethane	18.29	1.0	20	0	91.4	74 - 126	19.64	7.15	20	
Dibromomethane	17.6	1.0	20	0	88.0	79 - 123	18	2.23	20	
Dichlorodifluoromethane	13.06	1.0	20	0	65.3	32 - 152	14.31	9.15	20	
Ethylbenzene	19.36	1.0	20	0	96.8	79 - 121	20.96	7.95	20	
Hexachlorobutadiene	26.38	1.0	20	0	132	66 - 134	30.65	15	20	
Isopropylbenzene	19.6	1.0	20	0	98.0	72 - 131	21.05	7.16	20	
m,p-Xylene	37.05	2.0	40	0	92.6	80 - 121	40.22	8.2	20	
Methylene chloride	14.73	2.0	20	0	73.7	74 - 124	15.21	3.22	20	S
Naphthalene	20.77	1.0	20	0	104	61 - 128	21.8	4.81	20	
n-Butylbenzene	19.98	1.0	20	0	99.9	75 - 128	23.75	17.2	20	
n-Propylbenzene	19.08	1.0	20	0	95.4	76 - 126	22.75	17.6	20	
o-Xylene	18.22	1.0	20	0	91.1	78 - 122	19.71	7.84	20	
sec-Butylbenzene	19.87	1.0	20	0	99.3	77 - 126	23.84	18.2	20	
Styrene	18.13	1.0	20	0	90.6	78 - 123	19.39	6.75	20	
tert-Butylbenzene	20.05	1.0	20	0	100	78 - 124	23.8	17.1	20	
Tetrachloroethene	21.73	1.0	20	0	109	74 - 129	24.38	11.5	20	
Toluene	17.4	1.0	20	0	87.0	80 - 121	18.97	8.64	20	
trans-1,2-Dichloroethene	14.56	1.0	20	0	72.8	75 - 124	15.77	7.94	20	S
trans-1,3-Dichloropropene	17.94	1.0	20	0	89.7	73 - 127	18.3	2	20	
Trichloroethene	18.78	1.0	20	0	93.9	79 - 123	20.88	10.6	20	
Trichlorofluoromethane	14.88	1.0	20	0	74.4	65 - 141	16.17	8.33	20	
Vinyl chloride	13.37	1.0	20	0	66.9	58 - 137	14.51	8.17	20	
Surr: 1,2-Dichloroethane-d4	*45.38*	*1.0*	*50*	*0*	*90.8*	*81 - 118*	*45.49*	*0.24*	*20*	
Surr: 4-Bromofluorobenzene	*50.26*	*1.0*	*50*	*0*	*101*	*85 - 114*	*48.34*	*3.9*	*20*	
Surr: Dibromofluoromethane	*44.23*	*1.0*	*50*	*0*	*88.5*	*80 - 119*	*44.48*	*0.581*	*20*	
Surr: Toluene-d8	*50.68*	*1.0*	*50*	*0*	*101*	*89 - 112*	*52.16*	*2.88*	*20*	

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS21060181

QC BATCH REPORT

Batch ID: R385121 (0)	Instrument: VOA6	Method: VOLATILES ORGANICS BY METHOD 8260C

The following samples were analyzed in this batch:

HS21060181-01	HS21060181-02	HS21060181-03	HS21060181-04
HS21060181-05	HS21060181-07	HS21060181-08	HS21060181-09
HS21060181-10	HS21060181-11	HS21060181-12	HS21060181-13
HS21060181-14	HS21060181-16	HS21060181-17	HS21060181-18
HS21060181-19	HS21060181-20		

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS21060181

QC BATCH REPORT

Batch ID: R385224 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MBLK Sample ID: **VBLKW-210608** Units: **ug/L** Analysis Date: **08-Jun-2021 13:22**
Client ID: Run ID: **VOA6_385224** SeqNo: **6129607** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Tetrachloroethene	1.0	1.0								U
Surr: 1,2-Dichloroethane-d4	*46.33*	*1.0*	*50*	*0*	*92.7*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*48.74*	*1.0*	*50*	*0*	*97.5*	*85 - 114*				
Surr: Dibromofluoromethane	*44.59*	*1.0*	*50*	*0*	*89.2*	*80 - 119*				
Surr: Toluene-d8	*51.63*	*1.0*	*50*	*0*	*103*	*89 - 112*				

LCS Sample ID: **VLCSW-210608** Units: **ug/L** Analysis Date: **08-Jun-2021 12:40**
Client ID: Run ID: **VOA6_385224** SeqNo: **6129606** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Tetrachloroethene	23.07	1.0	20	0	115	74 - 129				
Surr: 1,2-Dichloroethane-d4	*51.75*	*1.0*	*50*	*0*	*103*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*50.69*	*1.0*	*50*	*0*	*101*	*85 - 114*				
Surr: Dibromofluoromethane	*48.21*	*1.0*	*50*	*0*	*96.4*	*80 - 119*				
Surr: Toluene-d8	*47.5*	*1.0*	*50*	*0*	*95.0*	*89 - 112*				

MS Sample ID: **HS21060181-99MS** Units: **ug/L** Analysis Date: **08-Jun-2021 15:07**
Client ID: Run ID: **VOA6_385224** SeqNo: **6132779** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Tetrachloroethene	21.32	1.0	20	0	107	74 - 129				
Surr: 1,2-Dichloroethane-d4	*47.02*	*1.0*	*50*	*0*	*94.0*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*49.83*	*1.0*	*50*	*0*	*99.7*	*85 - 114*				
Surr: Dibromofluoromethane	*44.81*	*1.0*	*50*	*0*	*89.6*	*80 - 119*				
Surr: Toluene-d8	*50.27*	*1.0*	*50*	*0*	*101*	*89 - 112*				

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS21060181

QC BATCH REPORT

Batch ID: R385224 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS21060181-99MSD** Units: **ug/L** Analysis Date: **08-Jun-2021 15:28**
Client ID: Run ID: **VOA6_385224** SeqNo: **6132780** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Tetrachloroethene	20.79	1.0	20	0	104	74 - 129	21.32	2.54	20	
Surr: 1,2-Dichloroethane-d4	*47.03*	*1.0*	*50*	*0*	*94.1*	*81 - 118*	*47.02*	*0.0143*	*20*	
Surr: 4-Bromofluorobenzene	*48.79*	*1.0*	*50*	*0*	*97.6*	*85 - 114*	*49.83*	*2.12*	*20*	
Surr: Dibromofluoromethane	*44.6*	*1.0*	*50*	*0*	*89.2*	*80 - 119*	*44.81*	*0.458*	*20*	
Surr: Toluene-d8	*50.54*	*1.0*	*50*	*0*	*101*	*89 - 112*	*50.27*	*0.539*	*20*	

The following samples were analyzed in this batch: HS21060181-12 HS21060181-13

Revision: 1

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ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS21060181

QC BATCH REPORT

Batch ID: R385452 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MBLK Sample ID: **VBLKW-210611** Units: **ug/L** Analysis Date: **11-Jun-2021 13:20**
Client ID: Run ID: **VOA6_385452** SeqNo: **6134131** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1.0	1.0								U
1,1,1-Trichloroethane	0.50	1.0								U
1,1,2,2-Tetrachloroethane	1.0	1.0								U
1,1,2-Trichloroethane	1.0	1.0								U
1,1-Dichloroethane	0.50	1.0								U
1,1-Dichloroethene	0.50	1.0								U
1,1-Dichloropropene	1.0	1.0								U
1,2,3-Trichlorobenzene	1.0	1.0								U
1,2,3-Trichloropropane	1.0	1.0								U
1,2,4-Trichlorobenzene	1.0	1.0								U
1,2,4-Trimethylbenzene	1.0	1.0								U
1,2-Dibromo-3-chloropropane	0.50	1.0								U
1,2-Dibromoethane	0.50	1.0								U
1,2-Dichlorobenzene	1.0	1.0								U
1,2-Dichloroethane	0.50	1.0								U
1,2-Dichloropropane	1.0	1.0								U
1,3,5-Trimethylbenzene	1.0	1.0								U
1,3-Dichlorobenzene	1.0	1.0								U
1,3-Dichloropropane	1.0	1.0								U
1,4-Dichlorobenzene	1.0	1.0								U
2,2-Dichloropropane	0.50	1.0								U
2-Butanone	1.0	2.0								U
2-Chlorotoluene	1.0	1.0								U
2-Hexanone	2.0	2.0								U
4-Chlorotoluene	1.0	1.0								U
4-Isopropyltoluene	1.0	1.0								U
4-Methyl-2-pentanone	2.0	2.0								U
Acetone	2.0	2.0								U
Benzene	0.50	1.0								U
Bromobenzene	1.0	1.0								U
Bromochloromethane	0.50	1.0								U
Bromodichloromethane	0.50	1.0								U
Bromoform	1.0	1.0								U
Bromomethane	1.0	1.0								U

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS21060181

QC BATCH REPORT

Batch ID: R385452 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MBLK Sample ID: **VBLKW-210611** Units: **ug/L** Analysis Date: **11-Jun-2021 13:20**
Client ID: Run ID: **VOA6_385452** SeqNo: **6134131** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	2.0	2.0								U
Carbon tetrachloride	1.0	1.0								U
Chlorobenzene	1.0	1.0								U
Chloroethane	1.0	1.0								U
Chloroform	0.50	1.0								U
Chloromethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
cis-1,3-Dichloropropene	0.50	1.0								U
Dibromochloromethane	1.0	1.0								U
Dibromomethane	0.50	1.0								U
Dichlorodifluoromethane	1.0	1.0								U
Ethylbenzene	1.0	1.0								U
Hexachlorobutadiene	1.0	1.0								U
Isopropylbenzene	1.0	1.0								U
m,p-Xylene	1.0	2.0								U
Methylene chloride	2.0	2.0								U
Naphthalene	1.0	1.0								U
n-Butylbenzene	1.0	1.0								U
n-Propylbenzene	1.0	1.0								U
o-Xylene	1.0	1.0								U
sec-Butylbenzene	1.0	1.0								U
Styrene	1.0	1.0								U
tert-Butylbenzene	1.0	1.0								U
Tetrachloroethene	1.0	1.0								U
Toluene	0.50	1.0								U
trans-1,2-Dichloroethene	0.50	1.0								U
trans-1,3-Dichloropropene	0.50	1.0								U
Trichloroethene	0.50	1.0								U
Trichlorofluoromethane	1.0	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*45.71*	*1.0*	*50*	*0*	*91.4*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*47.77*	*1.0*	*50*	*0*	*95.5*	*85 - 114*				
Surr: Dibromofluoromethane	*44.37*	*1.0*	*50*	*0*	*88.7*	*80 - 119*				
Surr: Toluene-d8	*52.28*	*1.0*	*50*	*0*	*105*	*89 - 112*				

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS21060181

QC BATCH REPORT

Batch ID: R385452 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

LCS Sample ID: **VLCSW-210611** Units: **ug/L** Analysis Date: **11-Jun-2021 12:38**
Client ID: Run ID: **VOA6_385452** SeqNo: **6134130** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	19.62	1.0	20	0	98.1	78 - 124				
1,1,1-Trichloroethane	17.19	1.0	20	0	86.0	74 - 131				
1,1,2,2-Tetrachloroethane	21.35	1.0	20	0	107	71 - 121				
1,1,2-Trichloroethane	19.35	1.0	20	0	96.7	80 - 119				
1,1-Dichloroethane	17.42	1.0	20	0	87.1	77 - 125				
1,1-Dichloroethene	15.79	1.0	20	0	79.0	71 - 131				
1,1-Dichloropropene	18.4	1.0	20	0	92.0	78 - 125				
1,2,3-Trichlorobenzene	24.78	1.0	20	0	124	69 - 129				
1,2,3-Trichloropropane	19.25	1.0	20	0	96.2	73 - 122				
1,2,4-Trichlorobenzene	24.54	1.0	20	0	123	69 - 130				
1,2,4-Trimethylbenzene	19.06	1.0	20	0	95.3	76 - 124				
1,2-Dibromo-3-chloropropane	22.73	1.0	20	0	114	62 - 128				
1,2-Dibromoethane	19.82	1.0	20	0	99.1	77 - 121				
1,2-Dichlorobenzene	19.59	1.0	20	0	98.0	80 - 119				
1,2-Dichloroethane	20.36	1.0	20	0	102	73 - 128				
1,2-Dichloropropane	19.14	1.0	20	0	95.7	78 - 122				
1,3,5-Trimethylbenzene	18.36	1.0	20	0	91.8	75 - 124				
1,3-Dichlorobenzene	19.85	1.0	20	0	99.2	80 - 119				
1,3-Dichloropropane	19.66	1.0	20	0	98.3	80 - 119				
1,4-Dichlorobenzene	19.18	1.0	20	0	95.9	79 - 118				
2,2-Dichloropropane	17.98	1.0	20	0	89.9	60 - 139				
2-Butanone	37.73	2.0	40	0	94.3	56 - 143				
2-Chlorotoluene	19.09	1.0	20	0	95.5	79 - 122				
2-Hexanone	39.3	2.0	40	0	98.3	57 - 139				
4-Chlorotoluene	18.58	1.0	20	0	92.9	78 - 122				
4-Isopropyltoluene	18.23	1.0	20	0	91.2	77 - 127				
4-Methyl-2-pentanone	37.67	2.0	40	0	94.2	67 - 130				
Acetone	34.2	2.0	40	0	85.5	39 - 160				
Benzene	19.31	1.0	20	0	96.6	79 - 120				
Bromobenzene	20.12	1.0	20	0	101	80 - 120				
Bromochloromethane	18.52	1.0	20	0	92.6	78 - 123				
Bromodichloromethane	19.27	1.0	20	0	96.3	79 - 125				
Bromoform	20.22	1.0	20	0	101	66 - 130				
Bromomethane	19.51	1.0	20	0	97.5	53 - 141				

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS21060181

QC BATCH REPORT

Batch ID: R385452 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-210611** Units: **ug/L** Analysis Date: **11-Jun-2021 12:38**
Client ID: Run ID: **VOA6_385452** SeqNo: **6134130** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	32.75	2.0	40	0	81.9	64 - 133				
Carbon tetrachloride	17.83	1.0	20	0	89.1	72 - 136				
Chlorobenzene	18	1.0	20	0	90.0	82 - 118				
Chloroethane	21.47	1.0	20	0	107	60 - 138				
Chloroform	17.85	1.0	20	0	89.2	79 - 124				
Chloromethane	16.94	1.0	20	0	84.7	50 - 139				
cis-1,2-Dichloroethene	18.59	1.0	20	0	93.0	78 - 123				
cis-1,3-Dichloropropene	20.3	1.0	20	0	102	75 - 124				
Dibromochloromethane	20.21	1.0	20	0	101	74 - 126				
Dibromomethane	19.91	1.0	20	0	99.6	79 - 123				
Dichlorodifluoromethane	17.73	1.0	20	0	88.7	32 - 152				
Ethylbenzene	19.79	1.0	20	0	98.9	79 - 121				
Hexachlorobutadiene	24.14	1.0	20	0	121	66 - 134				
Isopropylbenzene	18.19	1.0	20	0	90.9	72 - 131				
m,p-Xylene	37.46	2.0	40	0	93.7	80 - 121				
Methylene chloride	18.95	2.0	20	0	94.8	74 - 124				
Naphthalene	22.28	1.0	20	0	111	61 - 128				
n-Butylbenzene	18.07	1.0	20	0	90.3	75 - 128				
n-Propylbenzene	18.17	1.0	20	0	90.8	76 - 126				
o-Xylene	19.17	1.0	20	0	95.8	78 - 122				
sec-Butylbenzene	17.36	1.0	20	0	86.8	77 - 126				
Styrene	19.33	1.0	20	0	96.7	78 - 123				
tert-Butylbenzene	17.82	1.0	20	0	89.1	78 - 124				
Tetrachloroethene	19.11	1.0	20	0	95.5	74 - 129				
Toluene	18.09	1.0	20	0	90.5	80 - 121				
trans-1,2-Dichloroethene	17.22	1.0	20	0	86.1	75 - 124				
trans-1,3-Dichloropropene	20.22	1.0	20	0	101	73 - 127				
Trichloroethene	19.82	1.0	20	0	99.1	79 - 123				
Trichlorofluoromethane	15.32	1.0	20	0	76.6	65 - 141				
Vinyl chloride	16.4	1.0	20	0	82.0	58 - 137				
Surr: 1,2-Dichloroethane-d4	*50.92*	*1.0*	*50*	*0*	*102*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*49.28*	*1.0*	*50*	*0*	*98.6*	*85 - 114*				
Surr: Dibromofluoromethane	*48.34*	*1.0*	*50*	*0*	*96.7*	*80 - 119*				
Surr: Toluene-d8	*46.79*	*1.0*	*50*	*0*	*93.6*	*89 - 112*				

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS21060181

QC BATCH REPORT

Batch ID: R385452 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS21060181-06MS** Units: **ug/L** Analysis Date: **11-Jun-2021 15:06**
Client ID: **35AWW16_060121** Run ID: **VOA6_385452** SeqNo: **6134136** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	18.86	1.0	20	0	94.3	78 - 124				
1,1,1-Trichloroethane	16.78	1.0	20	0	83.9	74 - 131				
1,1,2,2-Tetrachloroethane	19.99	1.0	20	0	99.9	71 - 121				
1,1,2-Trichloroethane	18.33	1.0	20	0	91.6	80 - 119				
1,1-Dichloroethane	16.09	1.0	20	0.4628	78.1	77 - 125				
1,1-Dichloroethene	15.81	1.0	20	0	79.0	71 - 131				
1,1-Dichloropropene	18.91	1.0	20	0	94.6	78 - 125				
1,2,3-Trichlorobenzene	21.94	1.0	20	0	110	69 - 129				
1,2,3-Trichloropropane	18.52	1.0	20	0	92.6	73 - 122				
1,2,4-Trichlorobenzene	22.2	1.0	20	0	111	69 - 130				
1,2,4-Trimethylbenzene	18.73	1.0	20	0	93.7	76 - 124				
1,2-Dibromo-3-chloropropane	21.39	1.0	20	0	107	62 - 128				
1,2-Dibromoethane	18.18	1.0	20	0	90.9	77 - 121				
1,2-Dichlorobenzene	18.44	1.0	20	0	92.2	80 - 119				
1,2-Dichloroethane	17.91	1.0	20	0	89.5	73 - 128				
1,2-Dichloropropane	17.69	1.0	20	0	88.4	78 - 122				
1,3,5-Trimethylbenzene	19.14	1.0	20	0	95.7	75 - 124				
1,3-Dichlorobenzene	19.04	1.0	20	0	95.2	80 - 119				
1,3-Dichloropropane	18.31	1.0	20	0	91.6	80 - 119				
1,4-Dichlorobenzene	18.42	1.0	20	0	92.1	79 - 118				
2,2-Dichloropropane	16.91	1.0	20	0	84.6	60 - 139				
2-Butanone	31.43	2.0	40	0	78.6	56 - 143				
2-Chlorotoluene	19.2	1.0	20	0	96.0	79 - 122				
2-Hexanone	39.18	2.0	40	0	98.0	57 - 139				
4-Chlorotoluene	18.46	1.0	20	0	92.3	78 - 122				
4-Isopropyltoluene	19.84	1.0	20	0	99.2	77 - 127				
4-Methyl-2-pentanone	37.09	2.0	40	0	92.7	67 - 130				
Acetone	27.14	2.0	40	0	67.9	39 - 160				
Benzene	17.84	1.0	20	0	89.2	79 - 120				
Bromobenzene	19.52	1.0	20	0	97.6	80 - 120				
Bromochloromethane	16	1.0	20	0	80.0	78 - 123				
Bromodichloromethane	17.55	1.0	20	0	87.8	79 - 125				
Bromoform	18.88	1.0	20	0	94.4	66 - 130				
Bromomethane	16.43	1.0	20	0	82.1	53 - 141				

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS21060181

QC BATCH REPORT

Batch ID: R385452 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS21060181-06MS** Units: **ug/L** Analysis Date: **11-Jun-2021 15:06**
Client ID: **35AWW16_060121** Run ID: **VOA6_385452** SeqNo: **6134136** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	29.31	2.0	40	0	73.3	64 - 133				
Carbon tetrachloride	19.99	1.0	20	0	99.9	72 - 136				
Chlorobenzene	17.7	1.0	20	0	88.5	82 - 118				
Chloroethane	19.34	1.0	20	0	96.7	60 - 138				
Chloroform	15.59	1.0	20	0	77.9	79 - 124				S
Chloromethane	10.21	1.0	20	0	51.1	50 - 139				
cis-1,2-Dichloroethene	16.23	1.0	20	0	81.1	78 - 123				
cis-1,3-Dichloropropene	18.26	1.0	20	0	91.3	75 - 124				
Dibromochloromethane	18.63	1.0	20	0	93.1	74 - 126				
Dibromomethane	17.26	1.0	20	0	86.3	79 - 123				
Dichlorodifluoromethane	10.45	1.0	20	0	52.2	32 - 152				
Ethylbenzene	20	1.0	20	0	100	79 - 121				
Hexachlorobutadiene	23.92	1.0	20	0	120	66 - 134				
Isopropylbenzene	19.77	1.0	20	0	98.9	72 - 131				
m,p-Xylene	37.79	2.0	40	0	94.5	80 - 121				
Methylene chloride	15.4	2.0	20	0	77.0	74 - 124				
Naphthalene	20.42	1.0	20	0	102	61 - 128				
n-Butylbenzene	19.81	1.0	20	0	99.1	75 - 128				
n-Propylbenzene	19.68	1.0	20	0	98.4	76 - 126				
o-Xylene	18.54	1.0	20	0	92.7	78 - 122				
sec-Butylbenzene	20.05	1.0	20	0	100	77 - 126				
Styrene	18.39	1.0	20	0	91.9	78 - 123				
tert-Butylbenzene	19.47	1.0	20	0	97.4	78 - 124				
Tetrachloroethene	21.42	1.0	20	0	107	74 - 129				
Toluene	17.91	1.0	20	0	89.6	80 - 121				
trans-1,2-Dichloroethene	15.55	1.0	20	0	77.7	75 - 124				
trans-1,3-Dichloropropene	18.52	1.0	20	0	92.6	73 - 127				
Trichloroethene	19.89	1.0	20	0	99.4	79 - 123				
Trichlorofluoromethane	15.45	1.0	20	0	77.2	65 - 141				
Vinyl chloride	13.89	1.0	20	0	69.4	58 - 137				
Surr: 1,2-Dichloroethane-d4	*46.25*	*1.0*	*50*	*0*	*92.5*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*50.1*	*1.0*	*50*	*0*	*100*	*85 - 114*				
Surr: Dibromofluoromethane	*45.04*	*1.0*	*50*	*0*	*90.1*	*80 - 119*				
Surr: Toluene-d8	*50.2*	*1.0*	*50*	*0*	*100*	*89 - 112*				

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS21060181

QC BATCH REPORT

Batch ID: R385452 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS21060181-06MSD** Units: **ug/L** Analysis Date: **11-Jun-2021 15:27**
Client ID: **35AWW16_060121** Run ID: **VOA6_385452** SeqNo: **6134137** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	18.4	1.0	20	0	92.0	78 - 124	18.86	2.49	20	
1,1,1-Trichloroethane	16.42	1.0	20	0	82.1	74 - 131	16.78	2.19	20	
1,1,2,2-Tetrachloroethane	21.73	1.0	20	0	109	71 - 121	19.99	8.34	20	
1,1,2-Trichloroethane	18.6	1.0	20	0	93.0	80 - 119	18.33	1.49	20	
1,1-Dichloroethane	15.96	1.0	20	0.4628	77.5	77 - 125	16.09	0.834	20	
1,1-Dichloroethene	15.13	1.0	20	0	75.6	71 - 131	15.81	4.41	20	
1,1-Dichloropropene	18.55	1.0	20	0	92.7	78 - 125	18.91	1.94	20	
1,2,3-Trichlorobenzene	25.65	1.0	20	0	128	69 - 129	21.94	15.6	20	
1,2,3-Trichloropropane	20.51	1.0	20	0	103	73 - 122	18.52	10.2	20	
1,2,4-Trichlorobenzene	25.16	1.0	20	0	126	69 - 130	22.2	12.5	20	
1,2,4-Trimethylbenzene	19.94	1.0	20	0	99.7	76 - 124	18.73	6.26	20	
1,2-Dibromo-3-chloropropane	24.36	1.0	20	0	122	62 - 128	21.39	13	20	
1,2-Dibromoethane	18.88	1.0	20	0	94.4	77 - 121	18.18	3.78	20	
1,2-Dichlorobenzene	20.23	1.0	20	0	101	80 - 119	18.44	9.27	20	
1,2-Dichloroethane	17.85	1.0	20	0	89.2	73 - 128	17.91	0.321	20	
1,2-Dichloropropane	17.25	1.0	20	0	86.2	78 - 122	17.69	2.52	20	
1,3,5-Trimethylbenzene	20.2	1.0	20	0	101	75 - 124	19.14	5.41	20	
1,3-Dichlorobenzene	20.44	1.0	20	0	102	80 - 119	19.04	7.05	20	
1,3-Dichloropropane	18.51	1.0	20	0	92.6	80 - 119	18.31	1.09	20	
1,4-Dichlorobenzene	19.9	1.0	20	0	99.5	79 - 118	18.42	7.73	20	
2,2-Dichloropropane	16.49	1.0	20	0	82.5	60 - 139	16.91	2.5	20	
2-Butanone	31.29	2.0	40	0	78.2	56 - 143	31.43	0.441	20	
2-Chlorotoluene	20.32	1.0	20	0	102	79 - 122	19.2	5.64	20	
2-Hexanone	41.57	2.0	40	0	104	57 - 139	39.18	5.92	20	
4-Chlorotoluene	19.67	1.0	20	0	98.3	78 - 122	18.46	6.33	20	
4-Isopropyltoluene	21.2	1.0	20	0	106	77 - 127	19.84	6.65	20	
4-Methyl-2-pentanone	39.32	2.0	40	0	98.3	67 - 130	37.09	5.82	20	
Acetone	27.2	2.0	40	0	68.0	39 - 160	27.14	0.194	20	
Benzene	17.42	1.0	20	0	87.1	79 - 120	17.84	2.44	20	
Bromobenzene	20.44	1.0	20	0	102	80 - 120	19.52	4.62	20	
Bromochloromethane	15.93	1.0	20	0	79.6	78 - 123	16	0.475	20	
Bromodichloromethane	17.22	1.0	20	0	86.1	79 - 125	17.55	1.93	20	
Bromoform	19.32	1.0	20	0	96.6	66 - 130	18.88	2.31	20	
Bromomethane	15.41	1.0	20	0	77.1	53 - 141	16.43	6.4	20	

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS21060181

QC BATCH REPORT

Batch ID: R385452 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS21060181-06MSD** Units: **ug/L** Analysis Date: **11-Jun-2021 15:27**
Client ID: **35AWW16_060121** Run ID: **VOA6_385452** SeqNo: **6134137** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Carbon disulfide	28.87	2.0	40	0	72.2	64 - 133	29.31	1.51	20	
Carbon tetrachloride	19.1	1.0	20	0	95.5	72 - 136	19.99	4.52	20	
Chlorobenzene	17.83	1.0	20	0	89.2	82 - 118	17.7	0.739	20	
Chloroethane	19.85	1.0	20	0	99.2	60 - 138	19.34	2.56	20	
Chloroform	15.51	1.0	20	0	77.5	79 - 124	15.59	0.535	20	S
Chloromethane	10.3	1.0	20	0	51.5	50 - 139	10.21	0.805	20	
cis-1,2-Dichloroethene	15.86	1.0	20	0	79.3	78 - 123	16.23	2.27	20	
cis-1,3-Dichloropropene	18.01	1.0	20	0	90.0	75 - 124	18.26	1.4	20	
Dibromochloromethane	19.08	1.0	20	0	95.4	74 - 126	18.63	2.41	20	
Dibromomethane	17.8	1.0	20	0	89.0	79 - 123	17.26	3.06	20	
Dichlorodifluoromethane	9.969	1.0	20	0	49.8	32 - 152	10.45	4.69	20	
Ethylbenzene	19.52	1.0	20	0	97.6	79 - 121	20	2.44	20	
Hexachlorobutadiene	25.68	1.0	20	0	128	66 - 134	23.92	7.12	20	
Isopropylbenzene	19.65	1.0	20	0	98.2	72 - 131	19.77	0.614	20	
m,p-Xylene	37.83	2.0	40	0	94.6	80 - 121	37.79	0.114	20	
Methylene chloride	15.4	2.0	20	0	77.0	74 - 124	15.4	0.0377	20	
Naphthalene	25.54	1.0	20	0	128	61 - 128	20.42	22.3	20	R
n-Butylbenzene	21.41	1.0	20	0	107	75 - 128	19.81	7.76	20	
n-Propylbenzene	20.55	1.0	20	0	103	76 - 126	19.68	4.3	20	
o-Xylene	18.51	1.0	20	0	92.5	78 - 122	18.54	0.138	20	
sec-Butylbenzene	21.2	1.0	20	0	106	77 - 126	20.05	5.57	20	
Styrene	18.66	1.0	20	0	93.3	78 - 123	18.39	1.46	20	
tert-Butylbenzene	20.89	1.0	20	0	104	78 - 124	19.47	7.02	20	
Tetrachloroethene	21.29	1.0	20	0	106	74 - 129	21.42	0.591	20	
Toluene	17.92	1.0	20	0	89.6	80 - 121	17.91	0.0683	20	
trans-1,2-Dichloroethene	15.16	1.0	20	0	75.8	75 - 124	15.55	2.51	20	
trans-1,3-Dichloropropene	18.37	1.0	20	0	91.8	73 - 127	18.52	0.798	20	
Trichloroethene	19.44	1.0	20	0	97.2	79 - 123	19.89	2.26	20	
Trichlorofluoromethane	14.69	1.0	20	0	73.5	65 - 141	15.45	4.98	20	
Vinyl chloride	13.1	1.0	20	0	65.5	58 - 137	13.89	5.83	20	
Surr: 1,2-Dichloroethane-d4	*45.56*	*1.0*	*50*	*0*	*91.1*	*81 - 118*	*46.25*	*1.5*	*20*	
Surr: 4-Bromofluorobenzene	*48.67*	*1.0*	*50*	*0*	*97.3*	*85 - 114*	*50.1*	*2.9*	*20*	
Surr: Dibromofluoromethane	*45.03*	*1.0*	*50*	*0*	*90.1*	*80 - 119*	*45.04*	*0.0349*	*20*	
Surr: Toluene-d8	*50.9*	*1.0*	*50*	*0*	*102*	*89 - 112*	*50.2*	*1.37*	*20*	

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS21060181

QC BATCH REPORT

Batch ID: R385452 (0)	Instrument: VOA6	Method: VOLATILES ORGANICS BY METHOD 8260C

The following samples were analyzed in this batch: HS21060181-06 HS21060181-15 HS21060181-21

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS21060181

QC BATCH REPORT

Batch ID: R384952 (0) **Instrument: ICS-Integrion** **Method: ANIONS BY SW9056A**

MBLK Sample ID: **MBLK** Units: **mg/L** Analysis Date: **03-Jun-2021 13:51**
Client ID: Run ID: **ICS-Integrion_384952** SeqNo: **6122549** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate (As N)	0.100	0.100								U
Nitrogen, Nitrite (As N)	0.100	0.100								U
Sulfate	0.500	0.500								U

LCS Sample ID: **LCS** Units: **mg/L** Analysis Date: **03-Jun-2021 13:58**
Client ID: Run ID: **ICS-Integrion_384952** SeqNo: **6122550** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate (As N)	3.715	0.100	4	0	92.9	80 - 120				
Nitrogen, Nitrite (As N)	4.301	0.100	4	0	108	80 - 120				
Sulfate	19.48	0.500	20	0	97.4	80 - 120				

MS Sample ID: **HS21060181-13MS** Units: **mg/L** Analysis Date: **03-Jun-2021 18:19**
Client ID: **35AWW09_060221_a** Run ID: **ICS-Integrion_384952** SeqNo: **6122557** PrepDate: DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate (As N)	10.04	0.500	10	0.0735	99.6	80 - 120				
Nitrogen, Nitrite (As N)	10.32	0.500	10	0	103	80 - 120				
Sulfate	894.9	2.50	50	898	-6.30	80 - 120				SEO

MS Sample ID: **HS21060150-01MS** Units: **mg/L** Analysis Date: **03-Jun-2021 13:14**
Client ID: Run ID: **ICS-Integrion_384952** SeqNo: **6122546** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate (As N)	2.006	0.100	2	0.0136	99.6	80 - 120				
Nitrogen, Nitrite (As N)	2.147	0.100	2	0.0231	106	80 - 120				
Sulfate	26.75	0.500	10	17.05	97.0	80 - 120				

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS21060181

QC BATCH REPORT

Batch ID: R384952 (0) **Instrument: ICS-Integrion** **Method: ANIONS BY SW9056A**

MSD Sample ID: **HS21060181-13MSD** Units: **mg/L** Analysis Date: **03-Jun-2021 18:26**
Client ID: **35AWW09_060221_a** Run ID: **ICS-Integrion_384952** SeqNo: **6122558** PrepDate: DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate (As N)	10.3	0.500	10	0.0735	102	80 - 120	10.04	2.6	20	
Nitrogen, Nitrite (As N)	10.53	0.500	10	0	105	80 - 120	10.32	1.99	20	
Sulfate	925.8	2.50	50	898	55.4	80 - 120	894.9	3.39	20	SEO

MSD Sample ID: **HS21060150-01MSD** Units: **mg/L** Analysis Date: **03-Jun-2021 13:21**
Client ID: Run ID: **ICS-Integrion_384952** SeqNo: **6122547** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate (As N)	2.04	0.100	2	0.0136	101	80 - 120	2.006	1.68	20	
Nitrogen, Nitrite (As N)	2.181	0.100	2	0.0231	108	80 - 120	2.147	1.57	20	
Sulfate	27.37	0.500	10	17.05	103	80 - 120	26.75	2.29	20	

The following samples were analyzed in this batch: HS21060181-12 HS21060181-13 HS21060181-14 HS21060181-15 HS21060181-16 HS21060181-17

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS21060181

QC BATCH REPORT

Batch ID: R385033 (0) **Instrument: ICS-Integrion** **Method: ANIONS BY SW9056A**

MBLK Sample ID: **MBLK** Units: **mg/L** Analysis Date: **04-Jun-2021 11:25**
Client ID: Run ID: **ICS-Integrion_385033** SeqNo: **6124234** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	0.500	0.500								U
Sulfate	0.500	0.500								U

LCS Sample ID: **LCS** Units: **mg/L** Analysis Date: **04-Jun-2021 11:32**
Client ID: Run ID: **ICS-Integrion_385033** SeqNo: **6124235** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	19.5	0.500	20	0	97.5	80 - 120				
Sulfate	19.45	0.500	20	0	97.2	80 - 120				

MS Sample ID: **HS21060226-05MS** Units: **mg/L** Analysis Date: **04-Jun-2021 14:32**
Client ID: Run ID: **ICS-Integrion_385033** SeqNo: **6124246** PrepDate: DF: **100**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	1946	50.0	1000	940.1	101	80 - 120				
Sulfate	1215	50.0	1000	197	102	80 - 120				

MS Sample ID: **HS21060222-01MS** Units: **mg/L** Analysis Date: **04-Jun-2021 15:33**
Client ID: Run ID: **ICS-Integrion_385033** SeqNo: **6124253** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	35.46	0.500	10	26.62	88.5	80 - 120				
Sulfate	40.47	0.500	10	32.24	82.4	80 - 120				

MSD Sample ID: **HS21060226-05MSD** Units: **mg/L** Analysis Date: **04-Jun-2021 14:39**
Client ID: Run ID: **ICS-Integrion_385033** SeqNo: **6124247** PrepDate: DF: **100**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	1910	50.0	1000	940.1	97.0	80 - 120	1946	1.86	20	
Sulfate	1178	50.0	1000	197	98.1	80 - 120	1215	3.08	20	

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS21060181

QC BATCH REPORT

Batch ID: R385033 (0) **Instrument: ICS-Integrion** **Method: ANIONS BY SW9056A**

MSD Sample ID: **HS21060222-01MSD** Units: **mg/L** Analysis Date: **04-Jun-2021 15:40**
Client ID: Run ID: **ICS-Integrion_385033** SeqNo: **6124254** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	36.28	0.500	10	26.62	96.7	80 - 120	35.46	2.28	20	
Sulfate	41.73	0.500	10	32.24	94.9	80 - 120	40.47	3.05	20	

The following samples were analyzed in this batch: HS21060181-12 HS21060181-13 HS21060181-14 HS21060181-15 HS21060181-16 HS21060181-17

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS21060181

QC BATCH REPORT

Batch ID: R385048 (0) **Instrument: TOC_04** **Method: TOTAL ORGANIC CARBON BY E415.1**

MBLK Sample ID: **MBLK3-06042021** Units: **mg/L** Analysis Date: **05-Jun-2021 01:21**
Client ID: Run ID: **TOC_04_385048** SeqNo: **6124564** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	0.500	1.00								U

LCS Sample ID: **LCS3-06042021** Units: **mg/L** Analysis Date: **05-Jun-2021 01:33**
Client ID: Run ID: **TOC_04_385048** SeqNo: **6124565** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	10.96	1.00	10	0	110	85 - 115				

LCSD Sample ID: **LCSD3-06042021** Units: **mg/L** Analysis Date: **05-Jun-2021 01:45**
Client ID: Run ID: **TOC_04_385048** SeqNo: **6124566** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	10.84	1.00	10	0	108	85 - 115	10.96	1.1	20	

MS Sample ID: **HS21060181-12MS** Units: **mg/L** Analysis Date: **05-Jun-2021 02:12**
Client ID: **35AWW09_060221** Run ID: **TOC_04_385048** SeqNo: **6124568** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	19.24	1.00	10	7.497	117	80 - 120				

The following samples were analyzed in this batch: HS21060181-12 HS21060181-13 HS21060181-16 HS21060181-17

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS21060181

QC BATCH REPORT

Batch ID: R385254 (0) **Instrument: TOC_04** **Method: TOTAL ORGANIC CARBON BY E415.1**

MBLK Sample ID: **MBLK-06082021** Units: **mg/L** Analysis Date: **08-Jun-2021 17:43**
Client ID: Run ID: **TOC_04_385254** SeqNo: **6129899** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	0.500	1.00								U

LCS Sample ID: **LCS-06082021** Units: **mg/L** Analysis Date: **08-Jun-2021 17:55**
Client ID: Run ID: **TOC_04_385254** SeqNo: **6129900** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	11.48	1.00	10	0	115	85 - 115				

LCSD Sample ID: **LCSD-06082021** Units: **mg/L** Analysis Date: **08-Jun-2021 18:09**
Client ID: Run ID: **TOC_04_385254** SeqNo: **6129901** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	10.57	1.00	10	0	106	85 - 115	11.48	8.25	20	

MS Sample ID: **HS21060337-01MS** Units: **mg/L** Analysis Date: **09-Jun-2021 09:52**
Client ID: Run ID: **TOC_04_385254** SeqNo: **6129909** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	16.94	1.00	10	6.919	100	80 - 120				

The following samples were analyzed in this batch: HS21060181-14 HS21060181-15

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: **HS21060181**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL/SDL

Acronym	Description
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitaion Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

Unit Reported	Description
mg/L	Milligrams per Liter

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CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	21-022-0	26-Mar-2022
Dept of Defense	PJLA L20-507-R2	22-Dec-2021
Illinois	2000322021-7	09-May-2022
Kansas	E-10352 2020-2021	31-Jul-2021
Kentucky	123043, 2021-2022	30-Apr-2022
Louisiana	03087, 2021-2022	30-Jun-2022
North Carolina	624-2021	31-Dec-2021
Oklahoma	2020-165	31-Aug-2021
Texas	T104704231-21-27	30-Apr-2022
Utah	TX026932021-10	31-Jul-2021

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Work Order: HS21060181

SAMPLE TRACKING

Lab Samp ID	Client Sample ID	Action	Date	Person	New Location
HS21060181-01	35AWW01_060121	Login	6/3/2021 5:00:48 PM	JML	MET023
HS21060181-01	35AWW01_060121	Login	6/3/2021 5:00:48 PM	JML	VOA108
HS21060181-02	35AWW01_060121_a	Login	6/3/2021 5:05:53 PM	JML	MET023
HS21060181-02	35AWW01_060121_a	Login	6/3/2021 5:05:53 PM	JML	VOA108
HS21060181-03	35AWW13_060121	Login	6/3/2021 5:06:42 PM	JML	VOA108
HS21060181-04	35AWW10_060121	Login	6/3/2021 5:06:42 PM	JML	VOA108
HS21060181-05	35AWW15_060121	Login	6/3/2021 5:06:42 PM	JML	VOA108
HS21060181-06	35AWW16_060121	Login	6/3/2021 5:06:42 PM	JML	VOA108
HS21060181-07	35AWW18_060121	Login	6/3/2021 5:06:42 PM	JML	VOA108
HS21060181-08	35AWW24_060121	Login	6/3/2021 5:06:42 PM	JML	VOA108
HS21060181-09	35AWW24_060121_a	Login	6/3/2021 5:06:42 PM	JML	VOA108
HS21060181-10	35AWW21_060121	Login	6/3/2021 5:06:42 PM	JML	VOA108
HS21060181-11	35AWW14_060121	Login	6/3/2021 5:06:42 PM	JML	VOA108
HS21060181-12	35AWW09_060221	Login	6/3/2021 5:08:22 PM	JML	MET023
HS21060181-12	35AWW09_060221	Login	6/3/2021 5:08:22 PM	JML	WET104
HS21060181-12	35AWW09_060221	Login	6/3/2021 5:08:22 PM	JML	VOA108
HS21060181-12	35AWW09_060221	Login	6/3/2021 5:08:22 PM	JML	WET104
HS21060181-12	35AWW09_060221	Login	6/3/2021 5:08:22 PM	JML	Sub
HS21060181-12	35AWW09_060221	Login	6/3/2021 5:08:22 PM	JML	Sub
HS21060181-13	35AWW09_060221_a	Login	6/3/2021 5:21:32 PM	JML	MET023
HS21060181-13	35AWW09_060221_a	Login	6/3/2021 5:21:32 PM	JML	WET104
HS21060181-13	35AWW09_060221_a	Login	6/3/2021 5:21:32 PM	JML	VOA108
HS21060181-13	35AWW09_060221_a	Login	6/3/2021 5:21:32 PM	JML	WET104
HS21060181-13	35AWW09_060221_a	Login	6/3/2021 5:21:32 PM	JML	Sub
HS21060181-13	35AWW09_060221_a	Login	6/3/2021 5:21:32 PM	JML	Sub
HS21060181-14	03WW01_060221	Login	6/3/2021 5:21:32 PM	JML	MET023
HS21060181-14	03WW01_060221	Login	6/3/2021 5:21:32 PM	JML	WET104
HS21060181-14	03WW01_060221	Login	6/3/2021 5:21:32 PM	JML	VOA108
HS21060181-14	03WW01_060221	Login	6/3/2021 5:21:32 PM	JML	WET104
HS21060181-14	03WW01_060221	Login	6/3/2021 5:21:32 PM	JML	Sub
HS21060181-14	03WW01_060221	Login	6/3/2021 5:21:32 PM	JML	Sub
HS21060181-15	35AWW08_060221	Login	6/3/2021 5:21:32 PM	JML	MET023
HS21060181-15	35AWW08_060221	Login	6/3/2021 5:21:32 PM	JML	WET104
HS21060181-15	35AWW08_060221	Login	6/3/2021 5:21:32 PM	JML	VOA108
HS21060181-15	35AWW08_060221	Login	6/3/2021 5:21:32 PM	JML	WET104
HS21060181-15	35AWW08_060221	Login	6/3/2021 5:21:32 PM	JML	Sub
HS21060181-15	35AWW08_060221	Login	6/3/2021 5:21:32 PM	JML	Sub
HS21060181-16	35AWW11_060221	Login	6/3/2021 5:21:32 PM	JML	WET104
HS21060181-16	35AWW11_060221	Login	6/3/2021 5:21:32 PM	JML	VOA108

Revision:1

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ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Work Order: HS21060181

SAMPLE TRACKING

HS21060181-16	35AWW11_060221	Login	6/3/2021 5:21:32 PM	JML	WET104
HS21060181-16	35AWW11_060221	Login	6/3/2021 5:21:32 PM	JML	Sub
HS21060181-16	35AWW11_060221	Login	6/3/2021 5:21:32 PM	JML	Sub
HS21060181-17	LHSMW07_060221	Login	6/3/2021 5:21:32 PM	JML	WET104
HS21060181-17	LHSMW07_060221	Login	6/3/2021 5:21:32 PM	JML	VOA108
HS21060181-17	LHSMW07_060221	Login	6/3/2021 5:21:32 PM	JML	WET104
HS21060181-17	LHSMW07_060221	Login	6/3/2021 5:21:32 PM	JML	Sub
HS21060181-17	LHSMW07_060221	Login	6/3/2021 5:21:32 PM	JML	Sub
HS21060181-18	35AWW05_060221	Login	6/3/2021 7:13:15 PM	JML	VOA108
HS21060181-19	35AWW22_060221	Login	6/3/2021 7:13:15 PM	JML	VOA108
HS21060181-20	35AWW12_060221	Login	6/3/2021 7:13:15 PM	JML	VOA108
HS21060181-21	Trip Blank	Login	6/3/2021 7:13:15 PM	JML	VOA108

ALS Houston, US Date: 02-Jul-21

Sample Receipt Checklist

Work Order ID: HS21060181 **Date/Time Received:** **03-Jun-2021 10:30**

Client Name: Bhate Environmental **Received by:** **William Morgan**

Completed By:	/S/ Jared R. Makan	03-Jun-2021 19:54	**Reviewed by:**	/S/ Corey Grandits	04-Jun-2021 15:11
	eSignature	Date/Time		eSignature	Date/Time

Matrices: **Water** Carrier name: **FedEx Priority Overnight**

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	3 Page(s)
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Samplers name present on COC?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☐	No ☑	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	

Temperature(s)/Thermometer(s):	1.2°C UC/C	IR31
Cooler(s)/Kit(s):	46704	
Date/Time sample(s) sent to storage:	06/03/2021 20:00	

Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:			

Login Notes: Collection time differs for 35AWW12: COC=12:10, Containers=13:10. Sample logged in with time on COC.
One of the three vials for 03WW01 & 35AWW0 contains head-space greater than 6mm; sufficient vials submitted without head space to proceed with analysis.

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

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bhate

1608 13th Avenue South, Suite 300
Birmingham Alabama 35205
Tel: 205-918-4000
Fax: 205-918-4050

Chain of Custody and Analytical Request

Page: _____ of _____

Project/Phase No: NWO1312.0150

COC Number(1): _____

LIMS Number: _____

Facility/Base I.D.: LHAAP

Project/Site Name: LHAAP / Site 58

Client Name:

Collected by: Scott Beesinger

Field Sample ID (30 Characters Max)	Date Collected (dd-mmm-yyyy)	Time Collected (Military) (hhmm)	Sample Depth (beginning - ending)	SA Code (2)	Sample Number (3)	Sample Matrix (4)	Number of containers	VOC	MEE	TOC	Carbon Dioxide	Anions	ARSENIC					Ambient Blank Lot Control Number	Equipment Blank Lot Control Number	Trip Blank Lot Control Number	Cooler ID
35AWW01_060121	01 Jun 2021	0745	-	N		WG	4	X					X								
35AWW01_060121_a	01 Jun 2021	0745	-	FD		WG	4	X					X								
35AWW13_060121	01 Jun 2021	0830	-	N		WG	3	X													
35AWW10_060121	01 Jun 2021	0910		N		WG	3	X													
35AWW10_060121_MS	01 Jun 2021	0910		MS		WG	3	X													
35AWW10_060121_MSD	01 Jun 2021	0910	-	SD		WG	3	X													
35AWW15_060121	01 Jun 2021	0955	-	N		WG	3	X													
35AWW16_060121	01 Jun 2021	1035	-	N		WG	3	X													
35AWW16_060121_MS	01 Jun 2021	1035	-	MS		WG	3	X													
35AWW16_060121_MSD	01 Jun 2021	1035	-	SD		WG	3	X													
35AWW18_060121	01 Jun 2021	1120	-	N		WG	3	X													

Sample Analysis Requested (5) | Quality Assurance Samples (6)

COMMENTS:

Cooler 417014 Temp 1.2°C 11231 CFO

HS21060181

Bhate Environmental Associates, Inc.
LHAAP-58

Custody Transfers Prior to Receipt by Laboratory

Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1. Scott Beesinger	6/2/21	1430	1. J. Simmons	6/3/21	10:30
2.			2.		
3.			3.		

Sample Delivery Details / Laboratory Receipt

Delivered Directly to Lab: _____ Shipped No.:

_____ Method of Shipment: _____

_____ Fed Ex _____ Airbill Number:

_____ Analytical Lab: ALS 10450 Stanciff Rd. Suite 210 Houston, TX 77099 (281) 530-5656

ATTN: SONIA WEST Lab Recipient: Delivery Date/Time:

1.) Chain of Custody Number = date collected + custody number (e.g. 09-02-1999-01)

2.) Sample Type (SA) Codes: N = Normal Sample, TB = Trip Blank (-c) Sample, FD = Field Duplicate (-a) Samples, FR = Field Replicate (-b) Samples, EB = Equipment Blank (-d) Samples, MS = Matrix Spike, SD = Matrix Spike Duplicate, AB = Ambient Blank (-e)

3.) Sample Number: Unique sample number collected from a particular location per day. (e.g. Groundwater sample collected from MW-1 on 10/10/99 = 01, if sampled again on 10/10/99 = 02, etc.)

4.) Matrix Codes: GS = Soil Gas, WG = Groundwater, WS = Surface Water, SO = Soil, SE = Sediment, SL = Sludge, SS = Surface Soil Samples, WQ = Aqueous Blank Samples (trip, equipment, ambient, etc), SQ = Soil Blanks

5.) Sample Analysis Requested: Analytical method requested and number of containers provided for each.

6.) Quality assurance samples are assigned by date (ddmmyy) and the sample number associated with the sample (01, 02, etc) (e.g. Equipment blank collected in association with MW-1 on 10/10/99 will be designated 10109901 in the Equipment Blank Lot Control

RIGHT SOLUTIONS | RIGHT PARTNER

bhate

1608 13th Avenue South, Suite 300
Birmingham Alabama 35205
Tel: 205-918-4000
Fax: 205-918-4050

Chain of Custody and Analytical Request

Page: ____ of ____

Project/Phase No: NWO1312.0150

COC Number(1): ____

LIMS Number: ____

Facility/Base I.D.: LHAAP

Project/Site Name: LHAAP / Site 58

Client Name:

Collected by: Scott Beesinger

Field Sample ID (30 Characters Max)	Date Collected (dd-mmm-yyyy)	Time Collected (Military) (hhmm)	Sample Depth (beginning - ending)	SA Code [2]	Sample Number [3]	Sample Matrix [4]	Number of containers	VOC	MEE	TOC	Carbon Dioxide	Anions	ALSGN.C				Ambient Blank Lot Control Number	Equipment Blank Lot Control Number	Trip Blank Lot Control Number	Cooler ID
35AWW24_060121	01 Jun 2021	1205	-	N		WG	3	X												
35AWW24_060121_e	01 Jun 2021	1205	-	FD		WG	3	X												
35AWW21_060121	01 Jun 2021	1250	-	N		WG	3	X												
35AWW19_060121	01 Jun 2021	1300		N		WG	3	X												
35AWW09_060221	02 Jun 2021	0710		N		WG	12	X	X	X	X	X	X							
35AWW09_060221_e	02 Jun 2021	0710	-	FD		WG	12	X	X	X	X	X	X							
03WW01_060221	02 Jun 2021	0805	-	N		WG	12	X	X	X	X	X	X							
35AWW08_060221	02 Jun 2021	0855	-	N		WG	12	X	X	X	X	X	X							
35AWW11_060221	02 Jun 2021	0945	-	N		WG	11	X	X	X	X	X								
LHSMW07_060221	02 Jun 2021	1035	-	N		WG	11	X	X	X	X	X								
35AWW05_060221	02 Jun 2021	1130	-	N		WG	3	X												

Sample Analysis Requested [5] | Quality Assurance Samples [6]

COMMENTS:

Cooler 46704 Temp 1.2°C 1231 CFO

HS21060181

Bhate Environmental Associates, Inc.
LHAAP-58

Custody Transfers Prior to Receipt by Laboratory

Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1. Scott Beesinger	6/2/21	1430	1. [signature]	6/3/21	10:30
2.			2.		
3.			3.		

Sample Delivery Details / Laboratory Receipt

Delivered Directly to Lab: ____ Shipped ____ No.:

Method of Shipment: ____

____ Fed Ex ____ Airbill Number:

Analytical Lab: ALS 10450 Stanolift Rd, Suite 210 Houston, TX 77099 (281) 530-5656

ATTN: SONJA WEST Lab Recipient: Delivery Date/Time:

1.) Chain of Custody Number = date collected + custody number (e.g. 09-02-1999-01)

2.) Sample Type (SA) Codes: N = Normal Sample, TB = Trip Blank (-c) Sample, FD = Field Duplicate (-a) Samples, FR = Field Replicate (-b) Samples, EB = Equipment Blank (-d) Samples, MS = Matrix Spike, SD = Matrix Spike Duplicate, AB = Ambient Blank (-e)

3.) Sample Number: Unique sample number collected from a particular location per day. (e.g. Groundwater sample collected from MW-3 on 10/10/99 = 01, if sampled again on 10/10/99 = 02, etc.)

4.) Matrix Codes: GS = Soil Gas, WG = Groundwater, WS = Surface Water, SO = Soil, SE = Sediment, SL = Sludge, SS = Surface Soil Samples, WQ = Aqueous Blank Samples (trip, equipment, ambient, etc), SQ = Soil Blanks

5.) Sample Analysis Requested: Analytical method requested and number of containers provided for each.

6.) Quality assurance samples are assigned by date (ddmmyy) and the sample number associated with the sample (01, 02, etc) (e.g. Equipment blank collected in association with MW-1 on 10/10/99 will be designated 10109901 in the Equipment Blank Lot Control

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bhate

1608 13th Avenue South, Suite 300
Birmingham Alabama 35205
Tel: 205-918-4000
Fax: 205-918-4050

Chain of Custody and Analytical Request

Page: ____ of ____

Project/Phase No: NWO1312.0150

COC Number(1): ____

LIMS Number: ____

Facility/Base I.D.: LHAAP

Project/Site Name: LHAAP / Site 58

Client Name:

Collected by: Scott Beesinger

Field Sample ID (30 Characters Max)	Date Collected (dd-mmm-yyyy)	Time Collected (Military) (hhmm)	Sample Depth (beginning - ending)	SA Code (2)	Sample Number (3)	Sample Matrix (4)	Sample Analysis Requested (5): Number of containers	VOC	MEE	TOC	Carbon Dioxide	Anions	Quality Assurance Samples (6): Ambient Blank Lot Control Number	Equipment Blank Lot Control Number	Trip Blank Lot Control Number	Cooler ID
35A-WW22-060221	02 JUN 2021	1225	-	N		WG	3	X								
35A-WW12-060221	02 JUN 2021	1210	-	N		WG	3	X								
TRIP BLANK	02 JUN 2021		-	TB		WG	2	X								
			-													
			-													
			-													
			-													
			-													
			-													
			-													
			-													

COMMENTS: ____

HS21060181

Bhate Environmental Associates, Inc.
LHAAP-58

Custody Transfers Prior to Receipt by Laboratory

	Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1.	Scott Beesinger	6/2/21	1430			
2.						
3.						

Sample Delivery Details / Laboratory Receipt

Delivered Directly to Lab: ____ Shipped ____ No.:

Method of Shipment: ____

Fed Ex ____ Airbill Number:

Analytical Lab: ALS 10450 Stancliff Rd. Suite 210 Houston, TX 77099 (281) 530-5656

ATTN: SONIA WEST Lab Recipient: Delivery Date/Time:

1.) Chain of Custody Number = date collected + custody number (e.g. 09-02-1999-01)

2.) Sample Type (SA) Codes: N = Normal Sample, TB = Trip Blank (-c) Sample, FD = Field Duplicate (-a) Samples, FR = Field Replicate (-b) Samples, EB = Equipment Blank (-d) Samples, MS = Matrix Spike, SD = Matrix Spike Duplicate, AB = Ambient Blank (-e)

3.) Sample Number: Unique sample number collected from a particular location per day. (e.g. Groundwater sample collected from MW-1 on 10/10/99 = 01, if sampled again on 10/10/99 = 02, etc.)

4.) Matrix Codes: GS = Soil Gas, WG = Groundwater, WS = Surface Water, SO = Soil, SE = Sediment, SL = Sludge, SS = Surface Soil Samples, WQ = Aqueous Blank Samples (trip, equipment, ambient, etc), SQ = Soil Blanks

5.) Sample Analysis Requested: Analytical method requested and number of containers provided for each.

6.) Quality assurance samples are assigned by date (ddmmyy) and the sample number associated with the sample (01, 02, etc) (e.g. Equipment blank collected in association with MW-1 on 10/10/99 will be designated 10309901 in the Equipment Blank Lot Control

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ALS
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887

U6704

CUSTODY SEAL

Date: 6/2/21 Time: 1430
Name: Scott Beesinger
Company: BHETA

Seal Broken By: Gary
Date: 06/03/21

U6704 JUN 0 3 2021

U6704

ORIGIN ID:SGRA (903) 930-6199
SCOTT BEESINGER
BHATE ENVIRONMENTAL ASSOCIATES
1203-B EAST GRAND AVE. PMB202

MARSHALL, TX 75670
UNITED STATES US

SHIP DATE: 21MAY21
ACTWGT: 1.00 LB MAN
CAD: 0221247/CAFE3409
DIMS: 26x14x14 IN

SHIPPING DEPT
ALS LABORATORY GROUP
10450 STANCLIFF RD
SUITE 210
HOUSTON TX 77099
(281) 530-5656
REF: LHAAP-BO 78338-RJ

RMA:

FedEx Express

FedEx.
TRK# 0221 9473 0843 8831

THU - 03 JUN AA
PRIORITY OVERNIGHT

AB SGRA

77099
TX-US
IAH

FTD- SGA 56063/B387/1803

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June 22, 2021 Service Request No:R2105466

Ragen Giga
ALS Environmental - US
10450 Stancliff Rd Suite 210
Houston, TX 77099

Laboratory Results for: LHAAP / Site 58

Dear Ragen,

Enclosed are the results of the sample(s) submitted to our laboratory June 04, 2021
For your reference, these analyses have been assigned our service request number **R2105466.**

All testing was performed according to our laboratory's quality assurance program and met the requirements of the TNI standards except as noted in the case narrative report. Any testing not included in the lab's accreditation is identified on a Non-Certified Analytes report. All results are intended to be considered in their entirety. ALS Environmental is not responsible for use of less than the complete report. Results apply only to the individual samples submitted to the lab for analysis, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s), and represented by Laboratory Control Sample control limits. Any events, such as QC failures or Holding Time exceedances, which may add to the uncertainty are explained in the report narrative or are flagged with qualifiers. The flags are explained in the Report Qualifiers and Definitions page of this report.

Please contact me if you have any questions. My extension is 7471. You may also contact me via email at Brady.Kalkman@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Brady Kalkman
Project Manager

ADDRESS 1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
PHONE +1 585 288 5380 | FAX +1 585 288 8475
ALS Group USA, Corp.
dba ALS Environmental

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Narrative Documents

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

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1565 Jefferson Rd, Building 300, Rochester, NY 14623 | 585-288-5380 | www.alsglobal.com

Client: ALS Environmental - US
Project: LHAAP / Site 58
Sample Matrix: Water

Service Request: R2105466
Date Received: 06/03/2021 - 06/04/2021

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples for the Tier level IV requested by the client.

Sample Receipt:

Ten water samples were received for analysis at ALS Environmental on 06/03/2021 - 06/04/2021. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

Semivoa GC:

No significant anomalies were noted with this analysis.

Approved by _____ Date 06/22/2021

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SAMPLE DETECTION SUMMARY

CLIENT ID: 35AWW09-060221-a			Lab ID: R2105466-002			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Acetic Acid	0.63	J	0.56	4.0	mg/L	Organic Acids

CLIENT ID: 03WW01_060221			Lab ID: R2105466-003			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Acetic Acid	3.3	J	0.56	4.0	mg/L	Organic Acids

CLIENT ID: 35AWW08_060221			Lab ID: R2105466-004			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Acetic Acid	1.2	J	0.56	4.0	mg/L	Organic Acids
Lactic Acid	2.1		0.41	2.0	mg/L	Organic Acids

CLIENT ID: 35AWW11_060221			Lab ID: R2105466-005			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Acetic Acid	0.87	J	0.56	4.0	mg/L	Organic Acids

CLIENT ID: LHSMW07_060221			Lab ID: R2105466-006			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Acetic Acid	0.65	J	0.56	4.0	mg/L	Organic Acids

CLIENT ID: 35AWW19_060321			Lab ID: R2105466-007			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Acetic Acid	0.62	J	0.56	4.0	mg/L	Organic Acids

CLIENT ID: 35AWW23_060321			Lab ID: R2105466-008			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Acetic Acid	9.1		0.56	4.0	mg/L	Organic Acids

CLIENT ID: 35AWW20_060321			Lab ID: R2105466-009			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Acetic Acid	0.61	J	0.56	4.0	mg/L	Organic Acids

CLIENT ID: 35AWW06_060321			Lab ID: R2105466-010			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Acetic Acid	1.3	J	0.56	4.0	mg/L	Organic Acids

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Sample Receipt Information

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

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Client: ALS Environmental - US **Service Request:**R2105466
Project: LHAAP / Site 58/NW01312.0150

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
R2105466-001	35AWW09_060221	6/2/2021	0710
R2105466-002	35AWW09-060221-a	6/2/2021	0710
R2105466-003	03WW01_060221	6/2/2021	0805
R2105466-004	35AWW08_060221	6/2/2021	0855
R2105466-005	35AWW11_060221	6/2/2021	0945
R2105466-006	LHSMW07_060221	6/2/2021	1035
R2105466-007	35AWW19_060321	6/3/2021	0720
R2105466-008	35AWW23_060321	6/3/2021	0810
R2105466-009	35AWW20_060321	6/3/2021	0900
R2105466-010	35AWW06_060321	6/3/2021	1040

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01072311

bhate ENVIRONMENTAL CONTRACTING LIMITED

1608 13th Avenue South, Suite 300
Birmingham Alabama 35205
Tel: 205-918-4000
Fax: 205-918-4050

Page: ____ of ____

Project/Phase No: NWO1312.0150

COC Number(1): ____

LIMS Number: ____

Chain of Custody and Analytical Request

Facility/Base I.D.: LHAAP

Project/Site Name: LHAAP / Site 58

Client Name:

Collected by: Scott Beesinger

Field Sample ID (30 Characters Max)	Date Collected (dd-mmm-yyyy)	Time Collected (Military) (hhmm)	Sample Depth (beginning - ending)	SA Code (2)	Sample Number (3)	Sample Matrix (4)	Sample Analysis Requested (5): Number of containers	Volatile Fatty Acids										Quality Assurance Samples (6): Ambient Blank Lot Control Number	Equipment Blank Lot Control Number	Trip Blank Lot Control Number	Cooler ID
35AWW19_060321	03 JUN 2021	0720	-	N		WG	1	X													
35AWW23_060321	03 JUN 2021	0810	-	N		WG	1	X													
35AWW20_060321	03 JUN 2021	0900	-	N		WG	1	X													
35AWW06_060321	03 JUN 2021	1040		N		WG	1	X													
			-																		
			-																		
			-																		
			-																		
			-																		
			-																		

COMMENTS: STANDARD TAT

Custody Transfers Prior to Receipt by Laboratory

Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1. Scott Beesinger	6/3/21	1430	1.	6/4/21	0935
2.			2.		
3.			3.		

Sample Delivery Details / Laboratory Receipt

Delivered Directly to Lab: ____ Shipped ____ No.:

Method of Shipment: ____

Fed Ex ____ Airbill Number: ____

Analytical Lab: ALS 10450 Stanciff Rd. Suite 210 Houston, TX 77099 (281) 530-5656

ATTN: SONIA WEST Lab Recipient: Delivery Date/Time:

1.) Chain of Custody Number = date collected + custody number (e.g. 09-02-1999-01)

2.) Sample Type (SA) Codes: N = Normal Sample, TB = Trip Blank (-c) Sample, FD = Field Duplicate (-a) Samples, FR = Field Replicate (-b) Samples, EB = Equipment Blank (-d) Samples, MS = Matrix Spike, SD = Matrix Spike Duplicate, AB = Ambient Blank (-e)

3.) Sample Number: Unique sample number collected from a particular location per day. (e.g. Groundwater sample collected from MW-1 on 10/10/99 = 01, if sampled again on 10/10/99 = 02, etc.)

4.) Matrix Codes: GS = Soil Gas, WG = Groundwater, WS = Surface Water, SO = Soil, SE = Sediment, SL = Sludge, SS = Surface Soil Samples, WQ = Aqueous Blank Samples (trip, equipment, ambient, etc), SQ = Soil Blanks

5.) Sample Analysis Requested: Analytical method requested and number of containers provided for each.

6.) Quality assurance samples are assigned by date (ddmmyy) and the sample number associated with the sample (01, 02, etc) (e.g. Equipment blank collected in association with MW-1 on 10/10/99 will be designated 10109901 in the Equ

R2105466 5
ALS Laboratory Group
LHAAP / Site 58

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Cooler Receipt and Preservation Check Form

R2105466 5
ALS Laboratory Group
LHAAP / Site 68

Project/Client _____ Folder Number _____

Cooler received on 6/4/21 by: [illegible]

COURIER: ALS UPS (FEDEX) VELOCITY CLIENT

1	Were **Custody seals** on outside of cooler?	(Y) N	5a	**Perchlorate** samples have required headspace?	Y N (NA)
2	**Custody papers** properly completed (ink, signed)?	(Y) N	5b	Did VOA vials, Alk,or Sulfide have sig* **bubbles**?	Y N (NA)
3	Did all bottles arrive in good **condition** (unbroken)?	(Y) N	6	Where did the bottles originate?	(ALS/ROC) CLIENT
4	Circle: (**Wet Ice**) **Dry Ice** **Gel packs** present?	(Y) N	7	Soil VOA received as: Bulk Encore 5035set	(NA)

Temperature Readings Date: 6/4/21 Time: 1030 ID: IR#7 (IR#1) From: (Temp Blank) Sample Bottle

Observed Temp (°C)	2.7						
Within 0-6°C?	(Y) N	Y N	Y N	Y N	Y N	Y N	Y N
If <0°C, were samples frozen?	Y N	Y N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: _____ Ice melted Poorly Packed (described below) Same Day Rule

&Client Approval to Run Samples: _____ Standing Approval Client aware at drop-off Client notified by: _____

All samples held in storage location: R-002 by [illegible] on 6/4/21 at 1035
5035 samples placed in storage location: _____ by _____ on _____ at _____ within 48 hours of sampling? Y N

Cooler Breakdown/Preservation Check**: Date: 6/7/21 Time: 1115 by: [illegible]

9. Were all bottle labels complete (*i.e.* analysis, preservation, etc.)? (YES) NO
10. Did all bottle labels and tags agree with custody papers? (YES) NO
11. Were correct containers used for the tests indicated? (YES) NO
12. Were 5035 vials acceptable (no extra labels, not leaking)? YES NO (N/A)
13. Air Samples: Cassettes / Tubes Intact Y / N with MS Y / N Canisters Pressurized Tedlar® Bags Inflated (N/A)

pH	Lot of test paper	Reagent	Preserved? Yes	Preserved? No	Lot Received	Exp	Sample ID Adjusted	Vol. Added	Lot Added	Final pH
≥12		NaOH								
≤2		HNO_3								
≤2		H_2SO_4								
<4		$NaHSO_4$								
5-9		For 608pest			No=Notify for 3day					
Residual Chlorine (-)		For CN, Phenol, 625, 608pest, 522			If +, contact PM to add $Na_2S_2O_3$ (625, 608, CN), ascorbic (phenol).					
		$Na_2S_2O_3$								
		ZnAcetate	-	-			**VOAs and 1664 Not to be tested before analysis. Otherwise, all bottles of all samples with chemical preservatives are checked (not just representatives).			
		HCl	**	**						

Bottle lot numbers: 90121-06
Explain all Discrepancies/ Other Comments:

H_3PO_4 - 214482
lot

HPROD	BULK
HTR	FLDT
SUB	HGFB
ALS	LL3541

Labels secondary reviewed by: [illegible]

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bhate ENVIRONMENTAL CONSTRUCTION EXCELLENCY

1608 13th Avenue South, Suite 300
Birmingham Alabama 35205
Tel: 205-918-4000
Fax: 205-918-4050

Page: _____ of _____

Project/Phase No: NWO1312.0150

COC Number(1): _____

LIMS Number: _____

Chain of Custody and Analytical Request

Facility/Base I.D.: LHAAP

Project/Site Name: LHAAP / Site 58

Client Name:

Collected by: Scott Beesinger

Field Sample ID (30 Characters Max)	Date Collected (dd-mmm-yyyy)	Time Collected (Military) (hhmm)	Sample Depth (beginning - ending)	SA Code (2)	Sample Number (3)	Sample Matrix (4)	Number of containers	Volatile Fatty Acids										Ambient Blank Lot Control Number	Equipment Blank Lot Control Number	Trip Blank Lot Control Number	Cooler ID
							Sample Analysis Requested (5)											Quality Assurance Samples (6)			
35AWW09_060221	02Jun2021	0780	-	N		WG	1	X													
35AWW09_060221_a	02Jun2021	0710	-	FD		WG	1	X													
03WW01_060221	02Jun2021	0805	-	N		WG	1	X													
35AWW08_060221	02Jun2021	0855		N		WG	1	X													
35AWW11_060221	02Jun2021	0945		N		WG	1	X													
LHSMW07_060221	02Jun2021	1035	-	N		WG	1	X													
			-																		
			-																		
			-																		
			-																		
			-																		

COMMENTS: _____

Custody Transfers Prior to Receipt by Laboratory

	Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1.	Scott Beesinger	6/2/21	1430	Mabel Mesa	6/3/21	9:30
2.						
3.						

Sample Delivery Details / Laboratory Receipt

Delivered Directly to Lab: _____ Shipped No.:

_____ Method of Shipment: _____

_____ Fed Ex _____ Airbill Number:

_____ Analytical Lab: ALS 10450 Stancliff Rd. Suite 210 Houston, TX 77099 (281) 530-5656

ATTN: SONIA WEST Lab Recipient: Delivery Date/Time:

1.) Chain of Custody Number = date collected + custody number (e.g. 09-02-1999-01)

2.) Sample Type (SA) Codes: N = Normal Sample, TB = Trip Blank (-c) Sample, FD = Field Duplicate (-a) Samples, FR = Field Replicate (-b) Samples, EB = Equipment Blank (-d) Samples, MS = Matrix Spike, SD = Matrix Spike Duplicate, AB = Ambient Blank (-e)

3.) Sample Number: Unique sample number collected from a particular location per day. (e.g. Groundwater sample collected from MW-1 on 10/10/99 = 01, if sampled again on 10/10/99 = 02, etc.)

4.) Matrix Codes: GS = Soil Gas, WG = Groundwater, WS = Surface Water, SO = Soil, SE = Sediment, SL = Sludge, SS = Surface Soil Samples, WQ = Aqueous Blank Samples (trip, equipment, ambient, etc), SQ = Soil Blanks

5.) Sample Analysis Requested: Analytical method requested and number of containers provided for each.

6.) Quality assurance samples are assigned by date (ddmmyy) and the sample number associated with the sample (01, 02, etc) (e.g. Equipment blank collected in association with MW-1 on 10/10/99 will be designated 10109901 in the Eq

R2105466 5
ALS Laboratory Group
LHAAP / Site 58

RIGHT SOLUTIONS | RIGHT PARTNER

01072314

Cooler Receipt and Preservation Check Form

R2105466 5
ALS Laboratory Group
LHAAP / Site 68

Project/Client _____ Folder Number _____

Cooler received on 6/3/21 by: MM

COURIER: ALS UPS (FEDEX) VELOCITY CLIENT

1	Were **Custody seals** on outside of cooler?	(Y)	N
2	**Custody papers** properly completed (ink, signed)?	(Y)	N
3	Did all bottles arrive in good **condition** (unbroken)?	(Y)	N
4	Circle: Wet Ice **Dry Ice** **Gel packs** present?	(Y)	N

5a	**Perchlorate** samples have required headspace?	Y	N	(NA)
5b	Did VOA vials, Alk,or Sulfide have sig* **bubbles**?	Y	N	(NA)
6	Where did the bottles originate?	(ALS/ROC)	CLIENT	
7	Soil VOA received as: Bulk Encore 5035set			(NA)

3. Temperature Readings Date: 6/3/21 Time: 10:03 ID: IR#7 (IR#1) From: (Temp Blank) Sample Bottle

Observed Temp (°C)	3.6						
Within 0-6°C?	(Y) N	Y N	Y N	Y N	Y N	Y N	Y N
If <0°C, were samples frozen?	Y N	Y N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: _____ Ice melted Poorly Packed (described below) Same Day Rule

&Client Approval to Run Samples: _____ Standing Approval Client aware at drop-off Client notified by: _____

All samples held in storage location: R1002 by MM on 6/3/21 at 10:05
5035 samples placed in storage location: _____ by _____ on _____ at _____ within 48 hours of sampling? Y N

Cooler Breakdown/Preservation Check**: Date: 6/3/21 Time: 1425 by: DH

9. Were all bottle labels complete (*i.e.* analysis, preservation, etc.)? YES NO
10. Did all bottle labels and tags agree with custody papers? YES NO
11. Were correct containers used for the tests indicated? YES NO
12. Were 5035 vials acceptable (no extra labels, not leaking)? YES NO N/A
13. Air Samples: Cassettes / Tubes Intact Y / N with MS Y / N Canisters Pressurized Tedlar® Bags Inflated N/A

pH	Lot of test paper	Reagent	Preserved? Yes	Preserved? No	Lot Received	Exp	Sample ID Adjusted	Vol. Added	Lot Added	Final pH
≥12		NaOH								
≤2		HNO_3								
≤2		H_2SO_4								
<4		$NaHSO_4$								
5-9		For 608pest			No=Notify for 3day					
Residual Chlorine (-)		For CN, Phenol, 625, 608pest, 522			If +, contact PM to add $Na_2S_2O_3$ (625, 608, CN), ascorbic (phenol).					
		$Na_2S_2O_3$								
		ZnAcetate	-	-						
		HCl	**	**						

**VOAs and 1664 Not to be tested before analysis. Otherwise, all bottles of all samples with chemical preservatives are checked (not just representatives).

Bottle lot numbers: 9012L-06
Explain all Discrepancies/ Other Comments:

HPROD	BULK
HTR	FLDT
SUB	HGFB
ALS	LL3541

Labels secondary reviewed by: DH
PC Secondary Review: _____

Significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Group USA, Corp.
dba ALS Environmental

Internal Chain of Custody Report

Client: ALS Environmental - US **Service Request:** R2105466
Project: LHAAP / Site 58/NW01312.0150

Bottle ID	Methods	Date	Time	Sample Location / User	Disposed On
R2105466-001.01					
	Organic Acids				
		6/3/2021	1328	SMO / GLAFORCE	
		6/3/2021	1328	R-002 / GLAFORCE	
		6/8/2021	1154	In Lab / AFELSER	
		6/8/2021	1523	R-002 / AFELSER	
R2105466-002.01					
	Organic Acids				
		6/3/2021	1328	SMO / GLAFORCE	
		6/3/2021	1328	R-002 / GLAFORCE	
		6/8/2021	1154	In Lab / AFELSER	
		6/8/2021	1523	R-002 / AFELSER	
		6/17/2021	1444	In Lab / AFELSER	
		6/18/2021	0710	R-002 / AFELSER	
R2105466-003.01					
	Organic Acids				
		6/3/2021	1328	SMO / GLAFORCE	
		6/3/2021	1328	R-002 / GLAFORCE	
		6/8/2021	1154	In Lab / AFELSER	
		6/8/2021	1523	R-002 / AFELSER	
		6/17/2021	1444	In Lab / AFELSER	
		6/18/2021	0710	R-002 / AFELSER	
R2105466-004.01					
	Organic Acids				
		6/3/2021	1328	SMO / GLAFORCE	
		6/3/2021	1328	R-002 / GLAFORCE	
		6/8/2021	1155	In Lab / AFELSER	
		6/8/2021	1523	R-002 / AFELSER	
		6/17/2021	1444	In Lab / AFELSER	
		6/18/2021	0710	R-002 / AFELSER	
R2105466-005.01					
	Organic Acids				
		6/3/2021	1328	SMO / GLAFORCE	
		6/3/2021	1328	R-002 / GLAFORCE	
		6/8/2021	1155	In Lab / AFELSER	
		6/8/2021	1523	R-002 / AFELSER	
R2105466-006.01					
	Organic Acids				
		6/3/2021	1328	SMO / GLAFORCE	
		6/3/2021	1328	R-002 / GLAFORCE	
		6/8/2021	1155	In Lab / AFELSER	

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Internal Chain of Custody Report

Client: ALS Environmental - US **Service Request:** R2105466
Project: LHAAP / Site 58/NW01312.0150

Bottle ID	Methods	Date	Time	Sample Location / User	Disposed On
	Organic Acids				
		6/8/2021	1523	R-002 / AFELSER	
R2105466-007.01					
	Organic Acids				
		6/4/2021	1300	SMO / JJANSON	
		6/7/2021	1210	R-002 / GLAFORCE	
		6/8/2021	1155	In Lab / AFELSER	
		6/8/2021	1523	R-002 / AFELSER	
R2105466-008.01					
	Organic Acids				
		6/4/2021	1300	SMO / JJANSON	
		6/7/2021	1210	R-002 / GLAFORCE	
		6/8/2021	1155	In Lab / AFELSER	
		6/8/2021	1523	R-002 / AFELSER	
		6/17/2021	1444	In Lab / AFELSER	
		6/18/2021	0710	R-002 / AFELSER	
R2105466-009.01					
	Organic Acids				
		6/4/2021	1300	SMO / JJANSON	
		6/7/2021	1210	R-002 / GLAFORCE	
		6/8/2021	1155	In Lab / AFELSER	
		6/8/2021	1523	R-002 / AFELSER	
		6/17/2021	1444	In Lab / AFELSER	
		6/18/2021	0710	R-002 / AFELSER	
R2105466-010.01					
	Organic Acids				
		6/4/2021	1300	SMO / JJANSON	
		6/7/2021	1210	R-002 / GLAFORCE	
		6/8/2021	1155	In Lab / AFELSER	
		6/8/2021	1523	R-002 / AFELSER	
		6/17/2021	1444	In Lab / AFELSER	
		6/18/2021	0710	R-002 / AFELSER	

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Miscellaneous Forms

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REPORT QUALIFIERS AND DEFINITIONS

U Analyte was analyzed for but not detected. The sample quantitation limit has been corrected for dilution and for percent moisture, unless otherwise noted in the case narrative.

J Estimated value due to either being a Tentatively Identified Compound (TIC) or that the concentration is between the MRL and the MDL. Concentrations are not verified within the linear range of the calibration. For DoD: concentration >40% difference between two GC columns (pesticides/Arclors).

B Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.

E Inorganics- Concentration is estimated due to the serial dilution was outside control limits.

E Organics- Concentration has exceeded the calibration range for that specific analysis.

D Concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range or that a surrogate has been diluted out of the sample and cannot be assessed.

* Indicates that a quality control parameter has exceeded laboratory limits. Under the ñNotesò column of the Form I, this qualifier denotes analysis was performed out of Holding Time.

H Analysis was performed out of hold time for tests that have an ñimmediateò hold time criteria.

Spike was diluted out.

\+ Correlation coefficient for MSA is <0.995.

N Inorganics- Matrix spike recovery was outside laboratory limits.

N Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.

S Concentration has been determined using Method of Standard Additions (MSA).

W Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.

P Concentration >40% difference between the two GC columns.

C Confirmed by GC/MS

Q DoD reports: indicates a pesticide/Aroclor is not confirmed (Ó100% Difference between two GC columns).

X See Case Narrative for discussion.

MRL Method Reporting Limit. Also known as:
LOQ Limit of Quantitation (LOQ)
The lowest concentration at which the method analyte may be reliably quantified under the method conditions.

MDL Method Detection Limit. A statistical value derived from a study designed to provide the lowest concentration that will be detected 99% of the time. Values between the MDL and MRL are estimated (see J qualifier).

LOD Limit of Detection. A value at or above the MDL which has been verified to be detectable.

ND Non-Detect. Analyte was not detected at the concentration listed. Same as U qualifier.

ACCREDITED IN ACCORDANCE WITH nelac

Rochester Lab ID # for State Certifications[1]

Connecticut ID # PH0556	Maine ID #NY0032	Pennsylvania ID# 68-786
Delaware Approved	New Hampshire ID # 2941	Rhode Island ID # 158
DoD ELAP #65817	New York ID # 10145	Virginia #460167
Florida ID # E87674	North Carolina #676	

[1] Analyses were performed according to our laboratoryôs NELAP-approved quality assurance program and any applicable state or agency requirements. The test results meet requirements of the current NELAP/TNI standards or state or agency requirements, where applicable, except as noted in the case narrative. Since not all analyte/method/matrix combinations are offered for state/NELAC accreditation, this report may contain results which are not accredited. For a specific list of accredited analytes, contact the laboratory or go to https://www.alsglobal.com/locations/americas/north-america/usa/new-york/rochester-environmental

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Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

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ALS Group USA, Corp.
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Analyst Summary report

Client: ALS Environmental - US
Project: LHAAP / Site 58/NW01312.0150
Service Request: R2105466

Sample Name: 35AWW09_060221
Lab Code: R2105466-001
Sample Matrix: Water
Date Collected: 06/2/21
Date Received: 06/3/21

Analysis Method	Extracted/Digested By	Analyzed By
Organic Acids		AFELSER

Sample Name: 35AWW09-060221-a
Lab Code: R2105466-002
Sample Matrix: Water
Date Collected: 06/2/21
Date Received: 06/3/21

Analysis Method	Extracted/Digested By	Analyzed By
Organic Acids		AFELSER

Sample Name: 03WW01_060221
Lab Code: R2105466-003
Sample Matrix: Water
Date Collected: 06/2/21
Date Received: 06/3/21

Analysis Method	Extracted/Digested By	Analyzed By
Organic Acids		AFELSER

Sample Name: 35AWW08_060221
Lab Code: R2105466-004
Sample Matrix: Water
Date Collected: 06/2/21
Date Received: 06/3/21

Analysis Method	Extracted/Digested By	Analyzed By
Organic Acids		AFELSER

Sample Name: 35AWW11_060221
Lab Code: R2105466-005
Sample Matrix: Water
Date Collected: 06/2/21
Date Received: 06/3/21

Analysis Method	Extracted/Digested By	Analyzed By
Organic Acids		AFELSER

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Analyst Summary report

Client: ALS Environmental - US
Project: LHAAP / Site 58/NW01312.0150
Service Request: R2105466

Sample Name: LHSMW07_060221
Lab Code: R2105466-006
Sample Matrix: Water
Date Collected: 06/2/21
Date Received: 06/3/21

Analysis Method	Extracted/Digested By	Analyzed By
Organic Acids		AFELSER

Sample Name: 35AWW19_060321
Lab Code: R2105466-007
Sample Matrix: Water
Date Collected: 06/3/21
Date Received: 06/4/21

Analysis Method	Extracted/Digested By	Analyzed By
Organic Acids		AFELSER

Sample Name: 35AWW23_060321
Lab Code: R2105466-008
Sample Matrix: Water
Date Collected: 06/3/21
Date Received: 06/4/21

Analysis Method	Extracted/Digested By	Analyzed By
Organic Acids		AFELSER

Sample Name: 35AWW20_060321
Lab Code: R2105466-009
Sample Matrix: Water
Date Collected: 06/3/21
Date Received: 06/4/21

Analysis Method	Extracted/Digested By	Analyzed By
Organic Acids		AFELSER

Sample Name: 35AWW06_060321
Lab Code: R2105466-010
Sample Matrix: Water
Date Collected: 06/3/21
Date Received: 06/4/21

Analysis Method	Extracted/Digested By	Analyzed By
Organic Acids		AFELSER

INORGANIC PREPARATION METHODS

The preparation methods associated with this report are found in these tables unless discussed in the case narrative.

Water/Liquid Matrix

Analytical Method	Preparation Method
200.7	200.2
200.8	200.2
6010C	3005A/3010A
6020A	ILM05.3
9034 Sulfide Acid Soluble	9030B
SM 4500-CN-E Residual Cyanide	SM 4500-CN-G
SM 4500-CN-E WAD Cyanide	SM 4500-CN-I

Solid/Soil/Non-Aqueous Matrix

Analytical Method	Preparation Method
6010C	3050B
6020A	3050B
6010C TCLP (1311) extract	3005A/3010A
6010 SPLP (1312) extract	3005A/3010A
7199	3060A
300.0 Anions/ 350.1/ 353.2/ SM 2320B/ SM 5210B/ 9056A Anions	DI extraction
For analytical methods not listed, the preparation method is the same as the analytical method reference.	

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Sample Results

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Semivolatile Organic Compounds by GC

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Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R2105466
Project:	LHAAP / Site 58/NW01312.0150	**Date Collected:**	06/02/21 07:10
Sample Matrix:	Water	**Date Received:**	06/03/21 09:30
Sample Name:	35AWW09_060221	**Units:**	mg/L
Lab Code:	R2105466-001	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND U	0.20	0.10	0.052	1	06/10/21 14:15	
Acetic Acid	ND U	4.0	2.0	0.56	1	06/10/21 14:15	
Butanoic Acid (Butyric Acid)	ND U	2.0	1.0	0.77	1	06/10/21 14:15	
Lactic Acid	ND U	2.0	1.0	0.41	1	06/10/21 14:15	
Propionic Acid	ND U	4.0	1.5	1.1	1	06/10/21 14:15	

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Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R2105466
Project:	LHAAP / Site 58/NW01312.0150	**Date Collected:**	06/02/21 07:10
Sample Matrix:	Water	**Date Received:**	06/03/21 09:30
Sample Name:	35AWW09-060221-a	**Units:**	mg/L
Lab Code:	R2105466-002	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND U	0.20	0.10	0.052	1	06/18/21 00:51	
Acetic Acid	**0.63 J**	4.0	2.0	0.56	1	06/18/21 00:51	
Butanoic Acid (Butyric Acid)	ND U	2.0	1.0	0.77	1	06/18/21 00:51	
Lactic Acid	ND U	2.0	1.0	0.41	1	06/18/21 00:51	
Propionic Acid	ND U	4.0	1.5	1.1	1	06/18/21 00:51	

ALS Group USA, Corp.
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Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R2105466
Project:	LHAAP / Site 58/NW01312.0150	**Date Collected:**	06/02/21 08:05
Sample Matrix:	Water	**Date Received:**	06/03/21 09:30
Sample Name:	03WW01_060221	**Units:**	mg/L
Lab Code:	R2105466-003	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND U	0.20	0.10	0.052	1	06/18/21 01:54	
Acetic Acid	**3.3 J**	4.0	2.0	0.56	1	06/18/21 01:54	
Butanoic Acid (Butyric Acid)	ND U	2.0	1.0	0.77	1	06/18/21 01:54	
Lactic Acid	ND U	2.0	1.0	0.41	1	06/18/21 01:54	
Propionic Acid	ND U	4.0	1.5	1.1	1	06/18/21 01:54	

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Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R2105466
Project:	LHAAP / Site 58/NW01312.0150	**Date Collected:**	06/02/21 08:55
Sample Matrix:	Water	**Date Received:**	06/03/21 09:30
Sample Name:	35AWW08_060221	**Units:**	mg/L
Lab Code:	R2105466-004	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND U	0.20	0.10	0.052	1	06/18/21 02:56	
Acetic Acid	**1.2 J**	4.0	2.0	0.56	1	06/18/21 02:56	
Butanoic Acid (Butyric Acid)	ND U	2.0	1.0	0.77	1	06/18/21 02:56	
Lactic Acid	**2.1**	2.0	1.0	0.41	1	06/18/21 02:56	
Propionic Acid	ND U	4.0	1.5	1.1	1	06/18/21 02:56	

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Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R2105466
Project:	LHAAP / Site 58/NW01312.0150	**Date Collected:**	06/02/21 09:45
Sample Matrix:	Water	**Date Received:**	06/03/21 09:30
Sample Name:	35AWW11_060221	**Units:**	mg/L
Lab Code:	R2105466-005	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND U	0.20	0.10	0.052	1	06/11/21 00:32	
Acetic Acid	**0.87 J**	4.0	2.0	0.56	1	06/11/21 00:32	
Butanoic Acid (Butyric Acid)	ND U	2.0	1.0	0.77	1	06/11/21 00:32	
Lactic Acid	ND U	2.0	1.0	0.41	1	06/11/21 00:32	
Propionic Acid	ND U	4.0	1.5	1.1	1	06/11/21 00:32	

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Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R2105466
Project:	LHAAP / Site 58/NW01312.0150	**Date Collected:**	06/02/21 10:35
Sample Matrix:	Water	**Date Received:**	06/03/21 09:30
Sample Name:	LHSMW07_060221	**Units:**	mg/L
Lab Code:	R2105466-006	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result		LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND	U	0.20	0.10	0.052	1	06/11/21 01:33	
Acetic Acid	**0.65**	**J**	4.0	2.0	0.56	1	06/11/21 01:33	
Butanoic Acid (Butyric Acid)	ND	U	2.0	1.0	0.77	1	06/11/21 01:33	
Lactic Acid	ND	U	2.0	1.0	0.41	1	06/11/21 01:33	
Propionic Acid	ND	U	4.0	1.5	1.1	1	06/11/21 01:33	

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Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R2105466
Project:	LHAAP / Site 58/NW01312.0150	**Date Collected:**	06/03/21 07:20
Sample Matrix:	Water	**Date Received:**	06/04/21 09:35
Sample Name:	35AWW19_060321	**Units:**	mg/L
Lab Code:	R2105466-007	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result		LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND	U	0.20	0.10	0.052	1	06/11/21 02:35	
Acetic Acid	**0.62**	**J**	4.0	2.0	0.56	1	06/11/21 02:35	
Butanoic Acid (Butyric Acid)	ND	U	2.0	1.0	0.77	1	06/11/21 02:35	
Lactic Acid	ND	U	2.0	1.0	0.41	1	06/11/21 02:35	
Propionic Acid	ND	U	4.0	1.5	1.1	1	06/11/21 02:35	

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Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R2105466
Project:	LHAAP / Site 58/NW01312.0150	**Date Collected:**	06/03/21 08:10
Sample Matrix:	Water	**Date Received:**	06/04/21 09:35
Sample Name:	35AWW23_060321	**Units:**	mg/L
Lab Code:	R2105466-008	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result		LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND	U	0.20	0.10	0.052	1	06/18/21 06:00	
Acetic Acid	**9.1**		4.0	2.0	0.56	1	06/18/21 06:00	
Butanoic Acid (Butyric Acid)	ND	U	2.0	1.0	0.77	1	06/18/21 06:00	
Lactic Acid	ND	U	2.0	1.0	0.41	1	06/18/21 06:00	
Propionic Acid	ND	U	4.0	1.5	1.1	1	06/18/21 06:00	

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Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R2105466
Project:	LHAAP / Site 58/NW01312.0150	**Date Collected:**	06/03/21 09:00
Sample Matrix:	Water	**Date Received:**	06/04/21 09:35
Sample Name:	35AWW20_060321	**Units:**	mg/L
Lab Code:	R2105466-009	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result		LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND	U	0.20	0.10	0.052	1	06/18/21 07:01	
Acetic Acid	**0.61**	**J**	4.0	2.0	0.56	1	06/18/21 07:01	
Butanoic Acid (Butyric Acid)	ND	U	2.0	1.0	0.77	1	06/18/21 07:01	
Lactic Acid	ND	U	2.0	1.0	0.41	1	06/18/21 07:01	
Propionic Acid	ND	U	4.0	1.5	1.1	1	06/18/21 07:01	

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Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R2105466
Project:	LHAAP / Site 58/NW01312.0150	**Date Collected:**	06/03/21 10:40
Sample Matrix:	Water	**Date Received:**	06/04/21 09:35
Sample Name:	35AWW06_060321	**Units:**	mg/L
Lab Code:	R2105466-010	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND U	0.20	0.10	0.052	1	06/18/21 08:03	
Acetic Acid	**1.3 J**	4.0	2.0	0.56	1	06/18/21 08:03	
Butanoic Acid (Butyric Acid)	ND U	2.0	1.0	0.77	1	06/18/21 08:03	
Lactic Acid	ND U	2.0	1.0	0.41	1	06/18/21 08:03	
Propionic Acid	ND U	4.0	1.5	1.1	1	06/18/21 08:03	

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QC Summary Forms

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ALS Group USA, Corp.
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QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	R2105466
Project:	LHAAP / Site 58/NW01312.0150	**Date Collected:**	06/02/21
Sample Matrix:	Water	**Date Received:**	06/03/21
		Date Analyzed:	06/10/21

Duplicate Matrix Spike Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Sample Name:	35AWW09_060221	**Units:**	mg/L
Lab Code:	R2105466-001	**Basis:**	NA
Analysis Method:	Organic Acids		

		Matrix Spike RQ2106667-06			Duplicate Matrix Spike RQ2106667-07					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Pyruvic Acid	ND U	22.2	20.0	111	22.1	20.0	110	73-122	<1	30
Acetic Acid	ND U	23.1	20.0	115	23.1	20.0	116	80-130	<1	30
Butanoic Acid (Butyric Acid)	ND U	20.8	20.0	104	20.5	20.0	103	86-128	1	30
Lactic Acid	ND U	22.8	20.0	114	22.7	20.0	113	81-114	<1	30
Propionic Acid	ND U	23.0	20.0	115	19.8	20.0	99	63-153	15	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	R2105466
Project:	LHAAP / Site 58/NW01312.0150	**Date Collected:**	06/03/21
Sample Matrix:	Water	**Date Received:**	06/04/21
		Date Analyzed:	06/18/21

Duplicate Matrix Spike Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Sample Name:	35AWW06_060321	**Units:**	mg/L
Lab Code:	R2105466-010	**Basis:**	NA
Analysis Method:	Organic Acids		

		Matrix Spike RQ2107066-07			Duplicate Matrix Spike RQ2107066-08					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Pyruvic Acid	ND U	21.3	20.0	106	21.7	20.0	108	73-122	2	30
Acetic Acid	1.3 J	21.3	20.0	100	21.7	20.0	102	80-130	2	30
Butanoic Acid (Butyric Acid)	ND U	20.8	20.0	104	20.9	20.0	104	86-128	<1	30
Lactic Acid	ND U	19.5	20.0	98	19.9	20.0	100	81-114	2	30
Propionic Acid	ND U	19.7	20.0	99	21.3	20.0	106	63-153	8	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

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ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R2105466
Project:	LHAAP / Site 58/NW01312.0150	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	mg/L
Lab Code:	RQ2106667-02	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND U	0.20	0.10	0.052	1	06/10/21 09:09	
Acetic Acid	ND U	4.0	2.0	0.56	1	06/10/21 09:09	
Butanoic Acid (Butyric Acid)	ND U	2.0	1.0	0.77	1	06/10/21 09:09	
Lactic Acid	ND U	2.0	1.0	0.41	1	06/10/21 09:09	
Propionic Acid	ND U	4.0	1.5	1.1	1	06/10/21 09:09	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R2105466
Project:	LHAAP / Site 58/NW01312.0150	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	mg/L
Lab Code:	RQ2107066-02	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND U	0.20	0.10	0.052	1	06/17/21 19:45	
Acetic Acid	ND U	4.0	2.0	0.56	1	06/17/21 19:45	
Butanoic Acid (Butyric Acid)	ND U	2.0	1.0	0.77	1	06/17/21 19:45	
Lactic Acid	ND U	2.0	1.0	0.41	1	06/17/21 19:45	
Propionic Acid	ND U	4.0	1.5	1.1	1	06/17/21 19:45	

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ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: LHAAP / Site 58/NW01312.0150
Sample Matrix: Water

Service Request: R2105466
Date Analyzed: 06/10/21

Duplicate Lab Control Sample Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Units:mg/L
Basis:NA

		Lab Control Sample			Duplicate Lab Control Sample					
		RQ2106667-03			RQ2106667-04					
Analyte Name	**Analytical Method**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Pyruvic Acid	Organic Acids	21.5	20.0	107	21.0	20.0	105	73-122	2	30
Acetic Acid	Organic Acids	22.2	20.0	111	21.6	20.0	108	80-130	3	30
Butanoic Acid (Butyric Acid)	Organic Acids	20.6	20.0	103	20.7	20.0	104	86-128	<1	30
Lactic Acid	Organic Acids	22.5	20.0	112	22.3	20.0	111	81-114	<1	30
Propionic Acid	Organic Acids	20.1	20.0	101	19.6	20.0	98	63-153	2	30

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ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: LHAAP / Site 58/NW01312.0150
Sample Matrix: Water

Service Request: R2105466
Date Analyzed: 06/17/21

Duplicate Lab Control Sample Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Units:mg/L
Basis:NA

		Lab Control Sample			Duplicate Lab Control Sample					
		RQ2107066-03			RQ2107066-04					
Analyte Name	**Analytical Method**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Pyruvic Acid	Organic Acids	20.3	20.0	102	20.6	20.0	103	73-122	1	30
Acetic Acid	Organic Acids	21.5	20.0	108	21.8	20.0	109	80-130	1	30
Butanoic Acid (Butyric Acid)	Organic Acids	19.4	20.0	97	20.3	20.0	102	86-128	5	30
Lactic Acid	Organic Acids	21.4	20.0	107	21.6	20.0	108	81-114	1	30
Propionic Acid	Organic Acids	19.2	20.0	96	20.2	20.0	101	63-153	5	30

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microbialinsights
10515 Research Drive
Knoxville, TN 37932
Phone: (865) 573-8188
Fax: (865) 573-8133

ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY

Client: RagenP Giga
ALS Laboratory Group
10450 Stancliff Rd
Suite 210
Houston, TX 77040

Phone:

Fax:

Identifier: 011SF **Date Rec:** 06/03/2021 **Report Date:** 06/10/2021

Client Project #: NW01312.0150 **Client Project Name:** LHAAP / Site 58

Purchase Order #:

Test results provided for: CENSUS

Reviewed By:

NOTICE: This report is intended only for the addressee shown above and may contain confidential or privileged information. If the recipient of this material is not the intended recipient or if you have received this in error, please notify Microbial Insights, Inc. immediately. The data and other information in this report represent only the sample(s) analyzed and are rendered upon condition that it is not to be reproduced without approval from Microbial Insights, Inc. Thank you for your cooperation.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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MICROBIAL INSIGHTS, INC.

10515 Research Dr., Knoxville, TN 37932
Tel. (865) 573-8188 Fax. (865) 573-8133

CENSUS

Client: **ALS Laboratory Group**
Project: LHAAP / Site 58

MI Project Number: **011SF**
Date Received: 06/03/2021

Sample Information

Client Sample ID:		**03WW01_06022 1**	**35AWW08_060 221**	**35AWW11_060 221**	**LHSMW07_060 221**
Sample Date:		06/02/2021	06/02/2021	06/02/2021	06/02/2021
Units:		cells/mL	cells/mL	cells/mL	cells/mL
Analyst/Reviewer:		HT/CB	HT/CB	HT/CB	HT/CB
Dechlorinating Bacteria					
Dehalococcoides	*DHC*	**1.96E+02**	**1.22E+05**	**1.70E+02**	**4.43E+03**
tceA Reductase	TCE	**5.42E+01**	**1.64E+04**	**3.00E-01 (J)**	**7.00E-01**
BAV1 Vinyl Chloride Reductase	BVC	**5.00E-01 (J)**	**1.44E+02**	<1.00E+00	<6.00E-01
Vinyl Chloride Reductase	VCR	**1.02E+02**	**1.87E+04**	**3.35E+01**	**8.37E+03**
Dehalobacter spp.	*DHBt*	**2.49E+02**	**4.50E+03**	**5.83E+03**	**3.64E+03**

Legend:
NA = Not Analyzed NS = Not Sampled J = Estimated gene copies below PQL but above LQL I = Inhibited
< = Result not detected

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Quality Assurance/Quality Control Data

Samples Received **6/3/2021**

Component	Date Prepared	Date Analyzed	Arrival Temperature	Positive Control	Extraction Blank	Negative Control
BVC	06/03/2021	06/10/2021	2 °C	106%	non-detect	non-detect
TCE	06/03/2021	06/10/2021	2 °C	105%	non-detect	non-detect
VCR	06/03/2021	06/10/2021	2 °C	110%	non-detect	non-detect
DHBt	06/03/2021	06/10/2021	2 °C	107%	non-detect	non-detect
DHC	06/03/2021	06/10/2021	2 °C	105%	non-detect	non-detect

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2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
www.alsglobal.com

LABORATORY REPORT

June 30, 2021

Ragen Giga
ALS Environmental - US
10450 Stancliff Rd Suite 210
Houston, TX 77099

RE: HS21060181

Dear Ragen:

Enclosed are the results of the samples submitted to our laboratory on June 4, 2021. For your reference, these analyses have been assigned our service request number P2103091.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

ALS | Environmental

By Sue Anderson at 7:27 pm, Jun 30, 2021

For Hayden Akers
Project Manager

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2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
www.alsglobal.com

Client: ALS Environmental - US
Project: HS21060181

Service Request No: P2103091

CASE NARRATIVE

The samples were received intact under chain of custody on June 4, 2021 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Carbon Dioxide Analysis

The samples were analyzed for carbon dioxide using a gas chromatograph equipped with a thermal conductivity detector (TCD). A known amount of liquid was displaced by injecting 8.0 milliliters of helium creating a headspace in the sample vial. Each sample vial was agitated using a sonic disrupter for fifteen minutes and then allowed to equilibrate for at least four hours. A volume of the headspace was withdrawn using a gas-tight syringe and analyzed using a manual injection technique. The amount of dissolved gases (carbon dioxide) in the original sample was calculated using Henry's Law. This method was performed with guidance from RSK 175 as described in laboratory SOP VOA-DISGAS. This analyte is included on the laboratory's NELAP and DoD-ELAP scope of accreditation.

Methane, Ethene and Ethane Analysis

The samples were analyzed for methane, ethene, and ethane using a gas chromatograph equipped with a flame ionization detector (FID). A known amount of liquid was displaced by injecting 8.0 milliliters of helium creating a headspace in the sample vial. Each sample vial was agitated using a sonic disrupter for fifteen minutes and then allowed to equilibrate for at least two hours. A volume of the headspace was withdrawn using a gas-tight syringe and analyzed using a manual injection technique. The amount of dissolved gases (methane, ethene and ethane) in the original sample was calculated using Henry's Law. This method was performed with guidance from RSK 175. This method is included on the laboratory's NELAP and DoD-ELAP scope of accreditation. Any analytes flagged with an X are not included on the laboratory's NELAP or DoD-ELAP accreditation.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

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2655 Park Center Dr., Suite A
Simi Valley, CA 93065
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ALS Environmental – Simi Valley

CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

Agency	Web Site	Number
Alaska DEC	http://dec.alaska.gov/eh/lab.aspx	17-019
Arizona DHS	http://www.azdhs.gov/preparedness/state-laboratory/lab-licensure-certification/index.php#laboratory-licensure-home	AZ0694
Florida DOH (NELAP)	http://www.floridahealth.gov/licensing-and-regulation/environmental-laboratories/index.html	E871020
Louisiana DEQ (NELAP)	http://www.deq.louisiana.gov/page/la-lab-accreditation	05071
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/professionals/labCert.shtml	2018027
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	1776326
New Jersey DEP (NELAP)	http://www.nj.gov/dep/enforcement/oqa.html	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://www.oregon.gov/oha/ph/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	4068-008
Pennsylvania DEP	http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx	68-03307 (Registration)
PJLA (DoD ELAP)	http://www.pjlabs.com/search-accredited-labs	65818 (Testing)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/agency/qa/env_lab_accreditation.html	T104704413-19-10
Utah DOH (NELAP)	http://health.utah.gov/lab/lab_cert_env	CA016272019-10
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946

Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website.

Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.

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ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: ALS Environmental - US
Service Request: P2103091
Project ID: HS21060181

Date Received: 6/4/2021
Time Received: 09:30

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	RSK 175 - CO2	RSK 175 - Gases
35AWW09_060221	P2103091-001	Water	6/2/2021	07:10	X	X
35AWW09_060221_a	P2103091-002	Water	6/2/2021	07:10	X	X
03WW01_060221	P2103091-003	Water	6/2/2021	08:05	X	X
35AWW08_060221	P2103091-004	Water	6/2/2021	08:55	X	X
35AWW11_060221	P2103091-005	Water	6/2/2021	09:45	X	X
LHSMW07-060221	P2103091-006	Water	6/2/2021	10:35	X	X

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R10-3091

10450 Stancliff Rd, Ste 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887
www.alsglobal.com

Subcontract Chain of Custody

SAMPLING STATE: **Texas** **COC ID:** **16237**

SUBCONTRACT TO:

ALS Environmental
2655 Park Center Drive, Suite A
Simi Valley, CA 93065 **Phone:** +1 805 526 7161

CUSTOMER INFORMATION:

Company:	ALS Houston
Contact:	Ragen Giga
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Email:	RagenP.Giga@ALSGlobal.com
Alternate Contact:	Jumoke M. Lawal
Email:	jumoke.lawal@alsglobal.com

INVOICE INFORMATION:

Company:	ALS Houston
Contact:	Accounts Payable
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Reference:	HS21060181
TSR:	Sonia West

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS21060181-12**	**35AWW09_060221**	**Groundwater**	**02 Jun 2021 07:10**
	MEE plus CO2. Provide Level II and Level IV reports in separate pdf			17 Jun 2021
2.	**HS21060181-13**	**35AWW09_060221_a**	**Groundwater**	**02 Jun 2021 07:10**
	MEE plus CO2. Provide Level II and Level IV reports in separate pdf			17 Jun 2021
3.	**HS21060181-14**	**03WW01_060221**	**Groundwater**	**02 Jun 2021 08:05**
	MEE plus CO2. Provide Level II and Level IV reports in separate pdf			17 Jun 2021
4.	**HS21060181-15**	**35AWW08_060221**	**Groundwater**	**02 Jun 2021 08:55**
	MEE plus CO2. Provide Level II and Level IV reports in separate pdf			17 Jun 2021
5.	**HS21060181-16**	**35AWW11_060221**	**Groundwater**	**02 Jun 2021 09:45**
	MEE plus CO2. Provide Level II and Level IV reports in separate pdf			17 Jun 2021
6.	**HS21060181-17**	**LHSMW07_060221**	**Groundwater**	**02 Jun 2021 10:35**
	MEE plus CO2. Provide Level II and Level IV reports in separate pdf			17 Jun 2021

Comments: Please analyze for the analysis listed above.
Send report to the emails shown above.

QC Level: DOD IV (DoD Data Package)

B2103091

Subcontract Chain of Custody

SAMPLING STATE: **Texas**

COC ID: **16237**

Relinquished By: [illegible] Date/Time: 6/3/21 18:00

Received By: [signature] Date/Time: 6-4-21 0930

Cooler ID(s): Temperature(s): 2° wet

ALS Environmental
Sample Acceptance Check Form

Client: ALS Environmental - US Work order: P2103091

Project: HS21060181

Sample(s) received on: 6/4/21 Date opened: 6/4/21 by: ADAVID

Note: This form is used for all samples received by ALS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

		Yes	No	N/A
1	Were **sample containers** properly marked with client sample ID?	☒	☐	☐
2	Did **sample containers** arrive in good condition?	☒	☐	☐
3	Were **chain-of-custody** papers used and filled out?	☒	☐	☐
4	Did **sample container labels** and/or tags agree with custody papers?	☒	☐	☐
5	Was **sample volume** received adequate for analysis?	☒	☐	☐
6	Are samples within specified holding times?	☒	☐	☐
7	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☒	☐	☐
	Cooler Temperature: 2° C Blank Temperature: ° C	Wet Ic		
8	Were **custody seals** on outside of cooler/Box/Container?	☒	☐	☐
	Location of seal(s)? Cooler lid. Sealing Lid?	☒	☐	☐
	Were signature and date included?	☒	☐	☐
	Were seals intact?	☒	☐	☐
9	Do containers have appropriate **preservation**, according to method/SOP or Client specified information?	☒	☐	☐
	Is there a client indication that the submitted samples are **pH** preserved?	☒	☐	☐
	Were **VOA vials** checked for presence/absence of air bubbles?	☒	☐	☐
	Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?	☐	☒	☐
10	**Tubes:** Are the tubes capped and intact?	☐	☐	☒
11	**Badges:** Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P2103091-001.01	40mL VOA NP		7		A	cb 6/25/21
P2103091-001.02	40mL VOA NP				A	
P2103091-001.04	40ml VOA HCL				A	
P2103091-001.05	40ml VOA HCL		1		A	cb 6/14/21
P2103091-001.06	40ml VOA HCL				A	
P2103091-002.01	40mL VOA NP		5		A	cb 6/25/21
P2103091-002.02	40mL VOA NP				A	
P2103091-002.04	40ml VOA HCL		1		A	cb 6/14/21
P2103091-002.05	40ml VOA HCL				A	
P2103091-002.06	40ml VOA HCL				A	
P2103091-003.01	40mL VOA NP				A	
P2103091-003.02	40mL VOA NP		6		A	cb 6/25/21
P2103091-003.04	40ml VOA HCL				A	
P2103091-003.05	40ml VOA HCL		1		A	cb 6/14/21
P2103091-003.06	40ml VOA HCL				A	

Explain any discrepancies: (include lab sample ID numbers):

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

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ALS Environmental
Sample Acceptance Check Form

Client: ALS Environmental - US Work order: P2103091

Project: HS21060181

Sample(s) received on: 6/4/21 Date opened: 6/4/21 by: ADAVID

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P2103091-004.01	40mL VOA NP				A	
P2103091-004.02	40mL VOA NP		7		A	cb 6/25/21
P2103091-004.04	40ml VOA HCL				A	
P2103091-004.05	40ml VOA HCL		1		A	cb 6/14/21
P2103091-004.06	40ml VOA HCL				A	
P2103091-005.01	40mL VOA NP				A	
P2103091-005.02	40mL VOA NP		6		A	cb 6/25/21
P2103091-005.04	40ml VOA HCL				A	
P2103091-005.05	40ml VOA HCL				A	
P2103091-005.06	40ml VOA HCL		1		A	cb 6/14/21
P2103091-006.01	40mL VOA NP				A	
P2103091-006.02	40mL VOA NP		7		A	cb 6/25/21
P2103091-006.04	40ml VOA HCL				A	
P2103091-006.05	40ml VOA HCL				A	
P2103091-006.06	40ml VOA HCL		1		A	cb 6/14/21

Explain any discrepancies: (include lab sample ID numbers):

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

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ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Environmental - US**
Client Project ID: **HS21060181** ALS Project ID: P2103091

Carbon Dioxide

Test Code: RSK 175
Instrument ID: HP5890A/GC10/TCD
Analyst: Connor Barrett
Matrix: Liquid
Test Notes:

Date(s) Collected: 6/2/21
Date Received: 6/4/21
Date Analyzed: 6/25/21

Client Sample ID	ALS Sample ID	Injection Volume ml(s)	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
35AWW09_060221	P2103091-001	0.05	**650,000**	2,000	1,700	740	
35AWW09_060221_a	P2103091-002	0.05	**540,000**	2,000	1,700	740	
03WW01_060221	P2103091-003	0.05	**830,000**	2,000	1,700	740	
35AWW08_060221	P2103091-004	0.05	**430,000**	2,000	1,700	740	
35AWW11_060221	P2103091-005	0.05	**890,000**	2,000	1,700	740	
LHSMW07-060221	P2103091-006	0.05	**300,000**	2,000	1,700	740	
Method Control Sample	P210625-MB	0.10	860	1,000	860	370	**U**

The Method Control Sample is laboratory water carried through the entire analytical process.
U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

RIGHT SOLUTIONS | RIGHT PARTNER

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **ALS Environmental - US**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P2103091
Client Project ID: **HS21060181** ALS Sample ID: P210625-DLCS

Test Code: RSK 175 Date Collected: NA
Instrument ID: HP5890A/GC10/TCD Date Received: NA
Analyst: Connor Barrett Date Analyzed: 6/25/21
Matrix: Liquid Volume(s) Analyzed: NA ml(s)
Test Notes:

CAS #	Compound	Spike Amount LCS / DLCS ug/L	Result[1] LCS ug/L	Result[1] DLCS ug/L	% Recovery LCS	% Recovery DLCS	DOD Acceptance Limits	RPD	RPD Limit	Data Qualifier
124-38-9	Carbon Dioxide	22,900	19,000	19,100	**83**	**83**	80-122	0	12	

[1] = The concentration shown includes a subtraction of the Method Control Sample value, even if the result is less than the MRL.

RIGHT SOLUTIONS | RIGHT PARTNER

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Environmental - US**
Client Sample ID: **35AWW09_060221**
Client Project ID: **HS21060181**

ALS Project ID: P2103091
ALS Sample ID: P2103091-001

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Connor Barrett/Wade Henton
Matrix: Water
Test Notes:

Date Collected: 6/2/21
Date Received: 6/4/21
Date Analyzed: 6/14/21
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	**1.6**	1.3	1.0	0.51	
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

RIGHT SOLUTIONS | RIGHT PARTNER

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Environmental - US**
Client Sample ID: **35AWW09_060221_a** ALS Project ID: P2103091
Client Project ID: **HS21060181** ALS Sample ID: P2103091-002

Test Code: RSK 175 Date Collected: 6/2/21
Instrument ID: HP5890A/GC10/FID Date Received: 6/4/21
Analyst: Connor Barrett/Wade Henton Date Analyzed: 6/14/21
Matrix: Water Volume(s) Analyzed: 0.10 ml(s)
Test Notes:

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	**2.9**	1.3	1.0	0.51	
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

RIGHT SOLUTIONS | RIGHT PARTNER

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Environmental - US**
Client Sample ID: **03WW01_060221**
Client Project ID: **HS21060181**

ALS Project ID: P2103091
ALS Sample ID: P2103091-003

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Connor Barrett/Wade Henton
Matrix: Water
Test Notes:

Date Collected: 6/2/21
Date Received: 6/4/21
Date Analyzed: 6/14/21
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	**420**	1.3	1.0	0.51	
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

RIGHT SOLUTIONS | RIGHT PARTNER

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Environmental - US**
Client Sample ID: **35AWW08_060221**
Client Project ID: **HS21060181**

ALS Project ID: P2103091
ALS Sample ID: P2103091-004

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Connor Barrett/Wade Henton
Matrix: Water
Test Notes:

Date Collected: 6/2/21
Date Received: 6/4/21
Date Analyzed: 6/14/21
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	**1,600**	1.3	1.0	0.51	
74-85-1	Ethene	**33**	1.0	0.55	0.24	
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

RIGHT SOLUTIONS | RIGHT PARTNER

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Environmental - US**
Client Sample ID: **35AWW11_060221**
Client Project ID: **HS21060181**

ALS Project ID: P2103091
ALS Sample ID: P2103091-005

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Connor Barrett/Wade Henton
Matrix: Water
Test Notes:

Date Collected: 6/2/21
Date Received: 6/4/21
Date Analyzed: 6/14/21
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	**1,000**	1.3	1.0	0.51	
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

RIGHT SOLUTIONS | RIGHT PARTNER

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Environmental - US**
Client Sample ID: **LHSMW07-060221**
Client Project ID: **HS21060181**

ALS Project ID: P2103091
ALS Sample ID: P2103091-006

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Connor Barrett/Wade Henton
Matrix: Water
Test Notes:

Date Collected: 6/2/21
Date Received: 6/4/21
Date Analyzed: 6/14/21
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	**680**	1.3	1.0	0.51	
74-85-1	Ethene	**19**	1.0	0.55	0.24	
74-84-0	Ethane	**0.31**	0.60	0.47	0.16	**J**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

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ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Environmental - US**
Client Sample ID: **Method Control Sample** ALS Project ID: P2103091
Client Project ID: **HS21060181** ALS Sample ID: P210614-MB

Test Code: RSK 175 Date Collected: NA
Instrument ID: HP5890A/GC10/FID Date Received: NA
Analyst: Connor Barrett/Wade Henton Date Analyzed: 6/14/21
Matrix: Water Volume(s) Analyzed: 0.10 ml(s)
Test Notes:

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	1.0	1.3	1.0	0.51	**U**
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

The Method Control Sample is laboratory water carried through the entire analytical process.
U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

RIGHT SOLUTIONS | RIGHT PARTNER

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **ALS Environmental - US**
Client Sample ID: **Duplicate Lab Control Sample**
Client Project ID: **HS21060181**

ALS Project ID: P2103091
ALS Sample ID: P210614-LCS
P210614-DLCS

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Connor Barrett/Wade Henton
Matrix: Water
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 6/14/21
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Spike Amount LCS / DLCS µg/L	Result$_1$ LCS µg/L	Result$_1$ DLCS µg/L	% Recovery LCS	% Recovery DLCS	DOD Acceptance Limits	RPD	RPD Limit	Data Qualifier
74-82-8	Methane	2.52	2.39	2.74	**95**	**109**	73-125	14	26	
74-85-1	Ethene	4.40	4.53	4.53	**103**	**103**	72-133	0	11	
74-84-0	Ethane	4.72	4.70	4.71	**100**	**100**	74-131	0	10	

$_1$ = The concentration shown includes a subtraction of the Method Control Sample value, even if the result is less than the MRL.

RIGHT SOLUTIONS | RIGHT PARTNER

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July 02, 2021

Marcia Olive
Bhate Environmental Associates, Inc.
445 Union Blvd Ste 129
Lakewood, CO 80228

Work Order: **HS21060226**

Laboratory Results for: **LHAAP-58**

Dear Marcia Olive,

ALS Environmental received 8 sample(s) on Jun 04, 2021 for the analysis presented in the following report.

This is a REVISED REPORT. Please see the Case Narrative for discussion concerning this revision.

Regards,

Generated By: COREY.GRANDITS
Ragen Giga
Project Manager

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Work Order: HS21060226

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS21060226-01	35AWW19_060321	Groundwater		03-Jun-2021 07:20	04-Jun-2021 09:50	☐
HS21060226-02	35AWW23_060321	Groundwater		03-Jun-2021 08:10	04-Jun-2021 09:50	☐
HS21060226-03	35AWW20_060321	Groundwater		03-Jun-2021 09:00	04-Jun-2021 09:50	☐
HS21060226-04	LHSMW06_060321	Groundwater		03-Jun-2021 09:55	04-Jun-2021 09:50	☐
HS21060226-05	35AWW06_060321	Groundwater		03-Jun-2021 10:40	04-Jun-2021 09:50	☐
HS21060226-06	35AWW17_060321	Groundwater		03-Jun-2021 11:30	04-Jun-2021 09:50	☐
HS21060226-07	35ASW03_060321	Groundwater		03-Jun-2021 11:45	04-Jun-2021 09:50	☐
HS21060226-08	Trip Blank	Water	CG-031621-485	03-Jun-2021 00:00	04-Jun-2021 09:50	☐

Revision:1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc. **CASE NARRATIVE**
Project: LHAAP-58
Work Order: HS21060226

Work Order Comments

• Revision I - This report was revised on July 02, 2021 to include the missing DHC/DHB sub data.

Work Order Comments

• The analysis for RSK/CO2 was subcontracted to ALS Simi Valley, CA. The analysis for VFA subcontracted to ALS Rochester, NY. Final Report attached.

GCMS Volatiles by Method SW8260

Batch ID: R385452

Sample ID: 35AWW20_060321 (HS21060226-03)

• Lowest practical dilution for sample HS2106226-03 due to matrix.

Sample ID: HS21060181-06MS

• MS and MSD are for an unrelated sample

Metals by Method SW6020A

Batch ID: 166919

• The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

Wet Chemistry by Method SW9056

Batch ID: R385033

Sample ID: 35AWW20_060321 (HS21060226-03)

• Sample ran at 2X due to high concentration of Chloride & Sulfate

WetChemistry by Method E415.1

Batch ID: R385048

• The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method SW9056

Batch ID: R385033

Sample ID: 35AWW06_060321 (HS21060226-05)

• Sample ran at 2X due to high concentration of Chloride & Sulfate

Sample ID: 35AWW19_060321 (HS21060226-01)

• Sample ran at 2X due to high concentration of Chloride & Sulfate

Sample ID: 35AWW23_060321 (HS21060226-02)

• Sample ran at 2X due to high concentration of Chloride

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW19_060321
Collection Date: 03-Jun-2021 07:20

ANALYTICAL REPORT
WorkOrder:HS21060226
Lab ID:HS21060226-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 17:33
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 17:33
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	11-Jun-2021 17:33
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 17:33
1,1-Dichloroethane	**0.64**	J	**0.20**	**0.50**	**1.0**	**ug/L**	1	11-Jun-2021 17:33
1,1-Dichloroethene	**2.9**		**0.20**	**0.50**	**1.0**	**ug/L**	1	11-Jun-2021 17:33
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 17:33
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	11-Jun-2021 17:33
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	11-Jun-2021 17:33
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	11-Jun-2021 17:33
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 17:33
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 17:33
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 17:33
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	11-Jun-2021 17:33
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 17:33
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	11-Jun-2021 17:33
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 17:33
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	11-Jun-2021 17:33
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 17:33
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	11-Jun-2021 17:33
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 17:33
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	11-Jun-2021 17:33
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 17:33
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	11-Jun-2021 17:33
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	11-Jun-2021 17:33
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 17:33
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	11-Jun-2021 17:33
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	11-Jun-2021 17:33
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 17:33
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	11-Jun-2021 17:33
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 17:33
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 17:33
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	11-Jun-2021 17:33
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	11-Jun-2021 17:33
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	11-Jun-2021 17:33
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	11-Jun-2021 17:33
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 17:33
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 17:33
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 17:33

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW19_060321
Collection Date: 03-Jun-2021 07:20

ANALYTICAL REPORT
WorkOrder:HS21060226
Lab ID:HS21060226-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 17:33
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 17:33
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	11-Jun-2021 17:33
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 17:33
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 17:33
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 17:33
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 17:33
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	11-Jun-2021 17:33
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 17:33
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	11-Jun-2021 17:33
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	11-Jun-2021 17:33
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	11-Jun-2021 17:33
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 17:33
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 17:33
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 17:33
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 17:33
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 17:33
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 17:33
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 17:33
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 17:33
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 17:33
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 17:33
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 17:33
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 17:33
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 17:33
Surr: 1,2-Dichloroethane-d4	*93.1*			**0**	*81-118*	*%REC*	*1*	*11-Jun-2021 17:33*
Surr: 4-Bromofluorobenzene	*96.3*			**0**	*85-114*	*%REC*	*1*	*11-Jun-2021 17:33*
Surr: Dibromofluoromethane	*90.4*			**0**	*80-119*	*%REC*	*1*	*11-Jun-2021 17:33*
Surr: Toluene-d8	*103*			**0**	*89-112*	*%REC*	*1*	*11-Jun-2021 17:33*
TOTAL ORGANIC CARBON BY E415.1		**Method:E415.1**						Analyst: JAC
Organic Carbon, Total	**2.38**		**0.500**	**0.500**	**1.00**	**mg/L**	1	05-Jun-2021 04:01
ANIONS BY SW9056A		**Method:SW9056**						Analyst: YP
Chloride	**746**		**20.0**	**50.0**	**50.0**	**mg/L**	100	04-Jun-2021 14:02
Nitrogen, Nitrate (As N)	0.200	U	0.0600	0.200	0.200	mg/L	2	04-Jun-2021 13:33
Nitrogen, Nitrite (As N)	0.200	U	0.0600	0.200	0.200	mg/L	2	04-Jun-2021 13:33
Sulfate	**857**		**20.0**	**50.0**	**50.0**	**mg/L**	100	04-Jun-2021 14:02
SUBCONTRACT ANALYSIS - DHC/DHB		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	02-Jul-2021 17:44

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW19_060321
Collection Date: 03-Jun-2021 07:20

ANALYTICAL REPORT
WorkOrder:HS21060226
Lab ID:HS21060226-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUBCA
Subcontract Analysis	See Attached		0	0		NA	1	01-Jul-2021 09:25
SUBCONTRACT ANALYSIS - VOLATILE FATTY ACIDS		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	25-Jun-2021 17:38

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW23_060321
Collection Date: 03-Jun-2021 08:10

ANALYTICAL REPORT
WorkOrder:HS21060226
Lab ID:HS21060226-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 19:18
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 19:18
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	11-Jun-2021 19:18
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 19:18
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 19:18
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 19:18
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 19:18
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	11-Jun-2021 19:18
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	11-Jun-2021 19:18
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	11-Jun-2021 19:18
1,2,4-Trimethylbenzene	**0.51**	J	**0.30**	**1.0**	**1.0**	**ug/L**	1	11-Jun-2021 19:18
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 19:18
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 19:18
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	11-Jun-2021 19:18
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 19:18
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	11-Jun-2021 19:18
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 19:18
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	11-Jun-2021 19:18
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 19:18
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	11-Jun-2021 19:18
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 19:18
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	11-Jun-2021 19:18
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 19:18
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	11-Jun-2021 19:18
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	11-Jun-2021 19:18
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 19:18
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	11-Jun-2021 19:18
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	11-Jun-2021 19:18
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 19:18
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	11-Jun-2021 19:18
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 19:18
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 19:18
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	11-Jun-2021 19:18
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	11-Jun-2021 19:18
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	11-Jun-2021 19:18
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	11-Jun-2021 19:18
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 19:18
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 19:18
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 19:18

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW23_060321
Collection Date: 03-Jun-2021 08:10

ANALYTICAL REPORT
WorkOrder:HS21060226
Lab ID:HS21060226-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 19:18
cis-1,2-Dichloroethene	**1.0**		**0.20**	**0.50**	**1.0**	**ug/L**	1	11-Jun-2021 19:18
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	11-Jun-2021 19:18
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 19:18
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 19:18
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 19:18
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 19:18
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	11-Jun-2021 19:18
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 19:18
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	11-Jun-2021 19:18
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	11-Jun-2021 19:18
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	11-Jun-2021 19:18
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 19:18
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 19:18
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 19:18
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 19:18
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 19:18
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 19:18
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 19:18
Toluene	**14**		**0.20**	**0.50**	**1.0**	**ug/L**	1	11-Jun-2021 19:18
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 19:18
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 19:18
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 19:18
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 19:18
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 19:18
Surr: 1,2-Dichloroethane-d4	*92.4*			**0**	*81-118*	*%REC*	*1*	*11-Jun-2021 19:18*
Surr: 4-Bromofluorobenzene	*97.4*			**0**	*85-114*	*%REC*	*1*	*11-Jun-2021 19:18*
Surr: Dibromofluoromethane	*89.6*			**0**	*80-119*	*%REC*	*1*	*11-Jun-2021 19:18*
Surr: Toluene-d8	*105*			**0**	*89-112*	*%REC*	*1*	*11-Jun-2021 19:18*
TOTAL ORGANIC CARBON BY E415.1		**Method:E415.1**						Analyst: JAC
Organic Carbon, Total	**19.7**		**0.500**	**0.500**	**1.00**	**mg/L**	1	05-Jun-2021 04:15
ANIONS BY SW9056A		**Method:SW9056**						Analyst: YP
Chloride	**846**		**20.0**	**50.0**	**50.0**	**mg/L**	100	04-Jun-2021 14:09
Nitrogen, Nitrate (As N)	0.200	U	0.0600	0.200	0.200	mg/L	2	04-Jun-2021 13:40
Nitrogen, Nitrite (As N)	0.200	U	0.0600	0.200	0.200	mg/L	2	04-Jun-2021 13:40
Sulfate	**0.401**	J	**0.400**	**1.00**	**1.00**	**mg/L**	2	04-Jun-2021 13:40
SUBCONTRACT ANALYSIS - DHC/DHB		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	02-Jul-2021 17:44

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW23_060321
Collection Date: 03-Jun-2021 08:10

ANALYTICAL REPORT
WorkOrder:HS21060226
Lab ID:HS21060226-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUBCA
Subcontract Analysis	See Attached		0	0		NA	1	01-Jul-2021 09:25
SUBCONTRACT ANALYSIS - VOLATILE FATTY ACIDS		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	25-Jun-2021 17:38

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW20_060321
Collection Date: 03-Jun-2021 09:00

ANALYTICAL REPORT
WorkOrder:HS21060226
Lab ID:HS21060226-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	10	U	3.0	10	10	ug/L	10	11-Jun-2021 14:45
1,1,1-Trichloroethane	5.0	U	2.0	5.0	10	ug/L	10	11-Jun-2021 14:45
1,1,2,2-Tetrachloroethane	10	U	5.0	10	10	ug/L	10	11-Jun-2021 14:45
1,1,2-Trichloroethane	**73**		**3.0**	**10**	**10**	**ug/L**	10	11-Jun-2021 14:45
1,1-Dichloroethane	**480**		**2.0**	**5.0**	**10**	**ug/L**	10	11-Jun-2021 14:45
1,1-Dichloroethene	**1,600**		**2.0**	**5.0**	**10**	**ug/L**	10	11-Jun-2021 14:45
1,1-Dichloropropene	10	U	3.0	10	10	ug/L	10	11-Jun-2021 14:45
1,2,3-Trichlorobenzene	10	U	4.0	10	10	ug/L	10	11-Jun-2021 14:45
1,2,3-Trichloropropane	10	U	5.0	10	10	ug/L	10	11-Jun-2021 14:45
1,2,4-Trichlorobenzene	10	U	5.0	10	10	ug/L	10	11-Jun-2021 14:45
1,2,4-Trimethylbenzene	10	U	3.0	10	10	ug/L	10	11-Jun-2021 14:45
1,2-Dibromo-3-chloropropane	5.0	U	2.0	5.0	10	ug/L	10	11-Jun-2021 14:45
1,2-Dibromoethane	5.0	U	2.0	5.0	10	ug/L	10	11-Jun-2021 14:45
1,2-Dichlorobenzene	**27**		**5.0**	**10**	**10**	**ug/L**	10	11-Jun-2021 14:45
1,2-Dichloroethane	**17**		**2.0**	**5.0**	**10**	**ug/L**	10	11-Jun-2021 14:45
1,2-Dichloropropane	10	U	5.0	10	10	ug/L	10	11-Jun-2021 14:45
1,3,5-Trimethylbenzene	10	U	3.0	10	10	ug/L	10	11-Jun-2021 14:45
1,3-Dichlorobenzene	10	U	4.0	10	10	ug/L	10	11-Jun-2021 14:45
1,3-Dichloropropane	10	U	3.0	10	10	ug/L	10	11-Jun-2021 14:45
1,4-Dichlorobenzene	10	U	4.0	10	10	ug/L	10	11-Jun-2021 14:45
2,2-Dichloropropane	5.0	U	2.0	5.0	10	ug/L	10	11-Jun-2021 14:45
2-Butanone	10	U	5.0	10	20	ug/L	10	11-Jun-2021 14:45
2-Chlorotoluene	10	U	3.0	10	10	ug/L	10	11-Jun-2021 14:45
2-Hexanone	20	U	10	20	20	ug/L	10	11-Jun-2021 14:45
4-Chlorotoluene	10	U	4.0	10	10	ug/L	10	11-Jun-2021 14:45
4-Isopropyltoluene	10	U	3.0	10	10	ug/L	10	11-Jun-2021 14:45
4-Methyl-2-pentanone	20	U	7.0	20	20	ug/L	10	11-Jun-2021 14:45
Acetone	20	U	4.0	20	20	ug/L	10	11-Jun-2021 14:45
Benzene	**8.9**	J	**2.0**	**5.0**	**10**	**ug/L**	10	11-Jun-2021 14:45
Bromobenzene	10	U	4.0	10	10	ug/L	10	11-Jun-2021 14:45
Bromochloromethane	5.0	U	2.0	5.0	10	ug/L	10	11-Jun-2021 14:45
Bromodichloromethane	5.0	U	2.0	5.0	10	ug/L	10	11-Jun-2021 14:45
Bromoform	10	U	4.0	10	10	ug/L	10	11-Jun-2021 14:45
Bromomethane	10	U	4.0	10	10	ug/L	10	11-Jun-2021 14:45
Carbon disulfide	20	U	6.0	20	20	ug/L	10	11-Jun-2021 14:45
Carbon tetrachloride	10	U	5.0	10	10	ug/L	10	11-Jun-2021 14:45
Chlorobenzene	10	U	3.0	10	10	ug/L	10	11-Jun-2021 14:45
Chloroethane	10	U	3.0	10	10	ug/L	10	11-Jun-2021 14:45
Chloroform	5.0	U	2.0	5.0	10	ug/L	10	11-Jun-2021 14:45

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc. **ANALYTICAL REPORT**
Project: LHAAP-58 WorkOrder:HS21060226
Sample ID: 35AWW20_060321 Lab ID:HS21060226-03
Collection Date: 03-Jun-2021 09:00 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	5.0	U	2.0	5.0	10	ug/L	10	11-Jun-2021 14:45
cis-1,2-Dichloroethene	**87**		**2.0**	**5.0**	**10**	**ug/L**	10	11-Jun-2021 14:45
cis-1,3-Dichloropropene	5.0	U	1.0	5.0	10	ug/L	10	11-Jun-2021 14:45
Dibromochloromethane	10	U	3.0	10	10	ug/L	10	11-Jun-2021 14:45
Dibromomethane	5.0	U	2.0	5.0	10	ug/L	10	11-Jun-2021 14:45
Dichlorodifluoromethane	10	U	3.0	10	10	ug/L	10	11-Jun-2021 14:45
Ethylbenzene	10	U	3.0	10	10	ug/L	10	11-Jun-2021 14:45
Hexachlorobutadiene	10	U	10	10	10	ug/L	10	11-Jun-2021 14:45
Isopropylbenzene	10	U	3.0	10	10	ug/L	10	11-Jun-2021 14:45
m,p-Xylene	10	U	5.0	10	20	ug/L	10	11-Jun-2021 14:45
Methylene chloride	20	U	4.0	20	20	ug/L	10	11-Jun-2021 14:45
n-Butylbenzene	10	U	4.0	10	10	ug/L	10	11-Jun-2021 14:45
n-Propylbenzene	10	U	3.0	10	10	ug/L	10	11-Jun-2021 14:45
Naphthalene	10	U	3.0	10	10	ug/L	10	11-Jun-2021 14:45
o-Xylene	10	U	3.0	10	10	ug/L	10	11-Jun-2021 14:45
sec-Butylbenzene	10	U	3.0	10	10	ug/L	10	11-Jun-2021 14:45
Styrene	10	U	3.0	10	10	ug/L	10	11-Jun-2021 14:45
tert-Butylbenzene	10	U	3.0	10	10	ug/L	10	11-Jun-2021 14:45
Tetrachloroethene	10	U	3.0	10	10	ug/L	10	11-Jun-2021 14:45
Toluene	5.0	U	2.0	5.0	10	ug/L	10	11-Jun-2021 14:45
trans-1,2-Dichloroethene	5.0	U	2.0	5.0	10	ug/L	10	11-Jun-2021 14:45
trans-1,3-Dichloropropene	5.0	U	2.0	5.0	10	ug/L	10	11-Jun-2021 14:45
Trichloroethene	**190**		**2.0**	**5.0**	**10**	**ug/L**	10	11-Jun-2021 14:45
Trichlorofluoromethane	10	U	3.0	10	10	ug/L	10	11-Jun-2021 14:45
Vinyl chloride	**780**		**2.0**	**5.0**	**10**	**ug/L**	10	11-Jun-2021 14:45
Surr: 1,2-Dichloroethane-d4	*92.9*			**0**	*81-118*	*%REC*	*10*	*11-Jun-2021 14:45*
Surr: 4-Bromofluorobenzene	*97.3*			**0**	*85-114*	*%REC*	*10*	*11-Jun-2021 14:45*
Surr: Dibromofluoromethane	*89.7*			**0**	*80-119*	*%REC*	*10*	*11-Jun-2021 14:45*
Surr: Toluene-d8	*102*			**0**	*89-112*	*%REC*	*10*	*11-Jun-2021 14:45*
METALS BY ICPMS BY SW6020A		**Method:SW6020A**				Prep:SW3010A / 16-Jun-2021		Analyst: JHD
Arsenic	**0.00293**	J	**0.000400**	**0.00100**	**0.00500**	**mg/L**	1	17-Jun-2021 11:58
TOTAL ORGANIC CARBON BY E415.1		**Method:E415.1**						Analyst: JAC
Organic Carbon, Total	**20.5**		**0.500**	**0.500**	**1.00**	**mg/L**	1	05-Jun-2021 04:30
ANIONS BY SW9056A		**Method:SW9056**						Analyst: YP
Chloride	**615**		**20.0**	**50.0**	**50.0**	**mg/L**	100	04-Jun-2021 14:17
Nitrogen, Nitrate (As N)	0.200	U	0.0600	0.200	0.200	mg/L	2	04-Jun-2021 13:47
Nitrogen, Nitrite (As N)	0.200	U	0.0600	0.200	0.200	mg/L	2	04-Jun-2021 13:47
Sulfate	**955**		**20.0**	**50.0**	**50.0**	**mg/L**	100	04-Jun-2021 14:17

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW20_060321
Collection Date: 03-Jun-2021 09:00

ANALYTICAL REPORT
WorkOrder:HS21060226
Lab ID:HS21060226-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - DHC/DHB		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	02-Jul-2021 17:44
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUBCA
Subcontract Analysis	See Attached		0	0		NA	1	01-Jul-2021 09:25
SUBCONTRACT ANALYSIS - VOLATILE FATTY ACIDS		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	25-Jun-2021 17:38

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: LHSMW06_060321
Collection Date: 03-Jun-2021 09:55

ANALYTICAL REPORT
WorkOrder:HS21060226
Lab ID:HS21060226-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 17:54
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 17:54
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	11-Jun-2021 17:54
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 17:54
1,1-Dichloroethane	**5.3**		**0.20**	**0.50**	**1.0**	**ug/L**	1	11-Jun-2021 17:54
1,1-Dichloroethene	**11**		**0.20**	**0.50**	**1.0**	**ug/L**	1	11-Jun-2021 17:54
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 17:54
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	11-Jun-2021 17:54
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	11-Jun-2021 17:54
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	11-Jun-2021 17:54
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 17:54
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 17:54
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 17:54
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	11-Jun-2021 17:54
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 17:54
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	11-Jun-2021 17:54
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 17:54
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	11-Jun-2021 17:54
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 17:54
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	11-Jun-2021 17:54
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 17:54
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	11-Jun-2021 17:54
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 17:54
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	11-Jun-2021 17:54
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	11-Jun-2021 17:54
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 17:54
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	11-Jun-2021 17:54
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	11-Jun-2021 17:54
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 17:54
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	11-Jun-2021 17:54
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 17:54
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 17:54
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	11-Jun-2021 17:54
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	11-Jun-2021 17:54
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	11-Jun-2021 17:54
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	11-Jun-2021 17:54
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 17:54
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 17:54
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 17:54

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc. **ANALYTICAL REPORT**
Project: LHAAP-58 WorkOrder:HS21060226
Sample ID: LHSMW06_060321 Lab ID:HS21060226-04
Collection Date: 03-Jun-2021 09:55 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 17:54
cis-1,2-Dichloroethene	**71**		**0.20**	**0.50**	**1.0**	**ug/L**	1	11-Jun-2021 17:54
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	11-Jun-2021 17:54
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 17:54
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 17:54
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 17:54
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 17:54
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	11-Jun-2021 17:54
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 17:54
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	11-Jun-2021 17:54
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	11-Jun-2021 17:54
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	11-Jun-2021 17:54
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 17:54
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 17:54
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 17:54
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 17:54
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 17:54
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 17:54
Tetrachloroethene	**2.9**		**0.30**	**1.0**	**1.0**	**ug/L**	1	11-Jun-2021 17:54
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 17:54
trans-1,2-Dichloroethene	**1.2**		**0.20**	**0.50**	**1.0**	**ug/L**	1	11-Jun-2021 17:54
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 17:54
Trichloroethene	**19**		**0.20**	**0.50**	**1.0**	**ug/L**	1	11-Jun-2021 17:54
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 17:54
Vinyl chloride	**3.2**		**0.20**	**0.50**	**1.0**	**ug/L**	1	11-Jun-2021 17:54
Surr: 1,2-Dichloroethane-d4	*92.1*			**0**	*81-118*	*%REC*	*1*	*11-Jun-2021 17:54*
Surr: 4-Bromofluorobenzene	*98.1*			**0**	*85-114*	*%REC*	*1*	*11-Jun-2021 17:54*
Surr: Dibromofluoromethane	*89.9*			**0**	*80-119*	*%REC*	*1*	*11-Jun-2021 17:54*
Surr: Toluene-d8	*103*			**0**	*89-112*	*%REC*	*1*	*11-Jun-2021 17:54*
METALS BY ICPMS BY SW6020A		**Method:SW6020A**				Prep:SW3010A / 16-Jun-2021		Analyst: JHD
Arsenic	**0.000545**	J	**0.000400**	**0.00100**	**0.00500**	**mg/L**	1	17-Jun-2021 12:01

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW06_060321
Collection Date: 03-Jun-2021 10:40

ANALYTICAL REPORT
WorkOrder:HS21060226
Lab ID:HS21060226-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 18:15
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 18:15
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	11-Jun-2021 18:15
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 18:15
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 18:15
1,1-Dichloroethene	**0.90**	J	**0.20**	**0.50**	**1.0**	**ug/L**	1	11-Jun-2021 18:15
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 18:15
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	11-Jun-2021 18:15
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	11-Jun-2021 18:15
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	11-Jun-2021 18:15
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 18:15
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 18:15
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 18:15
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	11-Jun-2021 18:15
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 18:15
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	11-Jun-2021 18:15
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 18:15
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	11-Jun-2021 18:15
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 18:15
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	11-Jun-2021 18:15
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 18:15
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	11-Jun-2021 18:15
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 18:15
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	11-Jun-2021 18:15
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	11-Jun-2021 18:15
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 18:15
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	11-Jun-2021 18:15
Acetone	**6.9**		**0.40**	**2.0**	**2.0**	**ug/L**	1	11-Jun-2021 18:15
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 18:15
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	11-Jun-2021 18:15
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 18:15
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 18:15
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	11-Jun-2021 18:15
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	11-Jun-2021 18:15
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	11-Jun-2021 18:15
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	11-Jun-2021 18:15
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 18:15
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 18:15
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 18:15

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW06_060321
Collection Date: 03-Jun-2021 10:40

ANALYTICAL REPORT
WorkOrder:HS21060226
Lab ID:HS21060226-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 18:15
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 18:15
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	11-Jun-2021 18:15
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 18:15
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 18:15
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 18:15
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 18:15
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	11-Jun-2021 18:15
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 18:15
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	11-Jun-2021 18:15
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	11-Jun-2021 18:15
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	11-Jun-2021 18:15
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 18:15
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 18:15
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 18:15
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 18:15
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 18:15
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 18:15
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 18:15
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 18:15
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 18:15
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 18:15
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 18:15
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 18:15
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 18:15
Surr: 1,2-Dichloroethane-d4	*94.2*			**0**	*81-118*	*%REC*	*1*	*11-Jun-2021 18:15*
Surr: 4-Bromofluorobenzene	*96.1*			**0**	*85-114*	*%REC*	*1*	*11-Jun-2021 18:15*
Surr: Dibromofluoromethane	*90.1*			**0**	*80-119*	*%REC*	*1*	*11-Jun-2021 18:15*
Surr: Toluene-d8	*106*			**0**	*89-112*	*%REC*	*1*	*11-Jun-2021 18:15*
TOTAL ORGANIC CARBON BY E415.1		**Method:E415.1**						Analyst: JAC
Organic Carbon, Total	**14.4**		**0.500**	**0.500**	**1.00**	**mg/L**	1	05-Jun-2021 04:45
ANIONS BY SW9056A		**Method:SW9056**						Analyst: YP
Chloride	**940**		**20.0**	**50.0**	**50.0**	**mg/L**	100	04-Jun-2021 14:24
Nitrogen, Nitrate (As N)	0.200	U	0.0600	0.200	0.200	mg/L	2	04-Jun-2021 13:55
Nitrogen, Nitrite (As N)	0.200	U	0.0600	0.200	0.200	mg/L	2	04-Jun-2021 13:55
Sulfate	**197**		**20.0**	**50.0**	**50.0**	**mg/L**	100	04-Jun-2021 14:24
SUBCONTRACT ANALYSIS - DHC/DHB		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	02-Jul-2021 17:44

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW06_060321
Collection Date: 03-Jun-2021 10:40

ANALYTICAL REPORT
WorkOrder:HS21060226
Lab ID:HS21060226-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUBCA
Subcontract Analysis	See Attached		0	0		NA	1	01-Jul-2021 09:25
SUBCONTRACT ANALYSIS - VOLATILE FATTY ACIDS		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	25-Jun-2021 17:38

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW17_060321
Collection Date: 03-Jun-2021 11:30

ANALYTICAL REPORT
WorkOrder:HS21060226
Lab ID:HS21060226-06
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 18:36
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 18:36
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	11-Jun-2021 18:36
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 18:36
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 18:36
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 18:36
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 18:36
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	11-Jun-2021 18:36
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	11-Jun-2021 18:36
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	11-Jun-2021 18:36
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 18:36
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 18:36
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 18:36
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	11-Jun-2021 18:36
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 18:36
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	11-Jun-2021 18:36
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 18:36
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	11-Jun-2021 18:36
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 18:36
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	11-Jun-2021 18:36
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 18:36
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	11-Jun-2021 18:36
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 18:36
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	11-Jun-2021 18:36
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	11-Jun-2021 18:36
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 18:36
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	11-Jun-2021 18:36
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	11-Jun-2021 18:36
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 18:36
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	11-Jun-2021 18:36
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 18:36
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 18:36
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	11-Jun-2021 18:36
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	11-Jun-2021 18:36
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	11-Jun-2021 18:36
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	11-Jun-2021 18:36
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 18:36
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 18:36
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 18:36

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW17_060321
Collection Date: 03-Jun-2021 11:30

ANALYTICAL REPORT
WorkOrder:HS21060226
Lab ID:HS21060226-06
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 18:36
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 18:36
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	11-Jun-2021 18:36
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 18:36
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 18:36
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 18:36
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 18:36
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	11-Jun-2021 18:36
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 18:36
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	11-Jun-2021 18:36
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	11-Jun-2021 18:36
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	11-Jun-2021 18:36
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 18:36
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 18:36
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 18:36
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 18:36
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 18:36
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 18:36
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 18:36
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 18:36
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 18:36
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 18:36
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 18:36
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 18:36
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 18:36
Surr: 1,2-Dichloroethane-d4	*92.7*			**0**	*81-118*	*%REC*	*1*	*11-Jun-2021 18:36*
Surr: 4-Bromofluorobenzene	*98.4*			**0**	*85-114*	*%REC*	*1*	*11-Jun-2021 18:36*
Surr: Dibromofluoromethane	*90.7*			**0**	*80-119*	*%REC*	*1*	*11-Jun-2021 18:36*
Surr: Toluene-d8	*103*			**0**	*89-112*	*%REC*	*1*	*11-Jun-2021 18:36*

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

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ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35ASW03_060321
Collection Date: 03-Jun-2021 11:45

ANALYTICAL REPORT
WorkOrder:HS21060226
Lab ID:HS21060226-07
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 18:57
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 18:57
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	11-Jun-2021 18:57
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 18:57
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 18:57
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 18:57
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 18:57
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	11-Jun-2021 18:57
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	11-Jun-2021 18:57
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	11-Jun-2021 18:57
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 18:57
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 18:57
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 18:57
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	11-Jun-2021 18:57
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 18:57
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	11-Jun-2021 18:57
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 18:57
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	11-Jun-2021 18:57
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 18:57
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	11-Jun-2021 18:57
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 18:57
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	11-Jun-2021 18:57
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 18:57
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	11-Jun-2021 18:57
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	11-Jun-2021 18:57
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 18:57
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	11-Jun-2021 18:57
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	11-Jun-2021 18:57
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 18:57
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	11-Jun-2021 18:57
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 18:57
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 18:57
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	11-Jun-2021 18:57
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	11-Jun-2021 18:57
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	11-Jun-2021 18:57
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	11-Jun-2021 18:57
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 18:57
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 18:57
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 18:57

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

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ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35ASW03_060321
Collection Date: 03-Jun-2021 11:45

ANALYTICAL REPORT
WorkOrder:HS21060226
Lab ID:HS21060226-07
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 18:57
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 18:57
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	11-Jun-2021 18:57
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 18:57
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 18:57
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 18:57
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 18:57
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	11-Jun-2021 18:57
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 18:57
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	11-Jun-2021 18:57
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	11-Jun-2021 18:57
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	11-Jun-2021 18:57
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 18:57
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 18:57
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 18:57
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 18:57
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 18:57
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 18:57
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 18:57
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 18:57
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 18:57
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 18:57
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 18:57
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 18:57
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 18:57
Surr: 1,2-Dichloroethane-d4	*92.5*			**0**	*81-118*	*%REC*	*1*	*11-Jun-2021 18:57*
Surr: 4-Bromofluorobenzene	*95.4*			**0**	*85-114*	*%REC*	*1*	*11-Jun-2021 18:57*
Surr: Dibromofluoromethane	*89.1*			**0**	*80-119*	*%REC*	*1*	*11-Jun-2021 18:57*
Surr: Toluene-d8	*103*			**0**	*89-112*	*%REC*	*1*	*11-Jun-2021 18:57*

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: Trip Blank
Collection Date: 03-Jun-2021 00:00

ANALYTICAL REPORT
WorkOrder:HS21060226
Lab ID:HS21060226-08
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 17:12
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 17:12
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	11-Jun-2021 17:12
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 17:12
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 17:12
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 17:12
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 17:12
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	11-Jun-2021 17:12
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	11-Jun-2021 17:12
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	11-Jun-2021 17:12
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 17:12
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 17:12
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 17:12
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	11-Jun-2021 17:12
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 17:12
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	11-Jun-2021 17:12
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 17:12
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	11-Jun-2021 17:12
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 17:12
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	11-Jun-2021 17:12
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 17:12
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	11-Jun-2021 17:12
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 17:12
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	11-Jun-2021 17:12
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	11-Jun-2021 17:12
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 17:12
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	11-Jun-2021 17:12
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	11-Jun-2021 17:12
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 17:12
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	11-Jun-2021 17:12
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 17:12
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 17:12
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	11-Jun-2021 17:12
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	11-Jun-2021 17:12
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	11-Jun-2021 17:12
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	11-Jun-2021 17:12
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 17:12
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 17:12
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 17:12

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: Trip Blank
Collection Date: 03-Jun-2021 00:00

ANALYTICAL REPORT
WorkOrder:HS21060226
Lab ID:HS21060226-08
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 17:12
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 17:12
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	11-Jun-2021 17:12
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 17:12
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 17:12
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 17:12
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 17:12
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	11-Jun-2021 17:12
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 17:12
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	11-Jun-2021 17:12
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	11-Jun-2021 17:12
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	11-Jun-2021 17:12
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 17:12
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 17:12
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 17:12
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 17:12
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 17:12
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 17:12
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 17:12
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 17:12
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 17:12
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 17:12
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 17:12
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	11-Jun-2021 17:12
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	11-Jun-2021 17:12
Surr: 1,2-Dichloroethane-d4	*94.3*			**0**	*81-118*	*%REC*	*1*	*11-Jun-2021 17:12*
Surr: 4-Bromofluorobenzene	*98.6*			**0**	*85-114*	*%REC*	*1*	*11-Jun-2021 17:12*
Surr: Dibromofluoromethane	*89.9*			**0**	*80-119*	*%REC*	*1*	*11-Jun-2021 17:12*
Surr: Toluene-d8	*103*			**0**	*89-112*	*%REC*	*1*	*11-Jun-2021 17:12*

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

Weight / Prep Log

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS21060226

Batch ID: 166919 **Start Date:** 16 Jun 2021 10:00 **End Date:** 16 Jun 2021 14:00
Method: WATER - SW3010A **Prep Code:** 3010A

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS21060226-03		10 (mL)	10 (mL)	1	120 plastic HNO3
HS21060226-04		10 (mL)	10 (mL)	1	120 plastic HNO3

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS21060226

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: 166919 (0)	**Test Name :** METALS BY ICPMS BY SW6020A				**Matrix:** Groundwater	
HS21060226-03	35AWW20_060321	03 Jun 2021 09:00		16 Jun 2021 14:00	17 Jun 2021 11:58	1
HS21060226-04	LHSMW06_060321	03 Jun 2021 09:55		16 Jun 2021 14:00	17 Jun 2021 12:01	1
Batch ID: R385033 (0)	**Test Name :** ANIONS BY SW9056A				**Matrix:** Groundwater	
HS21060226-01	35AWW19_060321	03 Jun 2021 07:20			04 Jun 2021 14:02	100
HS21060226-01	35AWW19_060321	03 Jun 2021 07:20			04 Jun 2021 13:33	2
HS21060226-02	35AWW23_060321	03 Jun 2021 08:10			04 Jun 2021 14:09	100
HS21060226-02	35AWW23_060321	03 Jun 2021 08:10			04 Jun 2021 13:40	2
HS21060226-03	35AWW20_060321	03 Jun 2021 09:00			04 Jun 2021 14:17	100
HS21060226-03	35AWW20_060321	03 Jun 2021 09:00			04 Jun 2021 13:47	2
HS21060226-05	35AWW06_060321	03 Jun 2021 10:40			04 Jun 2021 14:24	100
HS21060226-05	35AWW06_060321	03 Jun 2021 10:40			04 Jun 2021 13:55	2
Batch ID: R385048 (0)	**Test Name :** TOTAL ORGANIC CARBON BY E415.1				**Matrix:** Groundwater	
HS21060226-01	35AWW19_060321	03 Jun 2021 07:20			05 Jun 2021 04:01	1
HS21060226-02	35AWW23_060321	03 Jun 2021 08:10			05 Jun 2021 04:15	1
HS21060226-03	35AWW20_060321	03 Jun 2021 09:00			05 Jun 2021 04:30	1
HS21060226-05	35AWW06_060321	03 Jun 2021 10:40			05 Jun 2021 04:45	1
Batch ID: R385452 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Water	
HS21060226-08	Trip Blank	03 Jun 2021 00:00			11 Jun 2021 17:12	1
Batch ID: R385452 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Groundwater	
HS21060226-01	35AWW19_060321	03 Jun 2021 07:20			11 Jun 2021 17:33	1
HS21060226-02	35AWW23_060321	03 Jun 2021 08:10			11 Jun 2021 19:18	1
HS21060226-03	35AWW20_060321	03 Jun 2021 09:00			11 Jun 2021 14:45	10
HS21060226-04	LHSMW06_060321	03 Jun 2021 09:55			11 Jun 2021 17:54	1
HS21060226-05	35AWW06_060321	03 Jun 2021 10:40			11 Jun 2021 18:15	1
HS21060226-06	35AWW17_060321	03 Jun 2021 11:30			11 Jun 2021 18:36	1
HS21060226-07	35ASW03_060321	03 Jun 2021 11:45			11 Jun 2021 18:57	1
Batch ID: R386387 (0)	**Test Name :** SUBCONTRACT ANALYSIS - VOLATILE FATTY ACIDS				**Matrix:** Groundwater	
HS21060226-01	35AWW19_060321	03 Jun 2021 07:20			25 Jun 2021 17:38	1
HS21060226-02	35AWW23_060321	03 Jun 2021 08:10			25 Jun 2021 17:38	1
HS21060226-03	35AWW20_060321	03 Jun 2021 09:00			25 Jun 2021 17:38	1
HS21060226-05	35AWW06_060321	03 Jun 2021 10:40			25 Jun 2021 17:38	1
Batch ID: R386731 (0)	**Test Name :** SUBCONTRACT ANALYSIS - RSK				**Matrix:** Groundwater	
HS21060226-01	35AWW19_060321	03 Jun 2021 07:20			01 Jul 2021 09:25	1
HS21060226-02	35AWW23_060321	03 Jun 2021 08:10			01 Jul 2021 09:25	1
HS21060226-03	35AWW20_060321	03 Jun 2021 09:00			01 Jul 2021 09:25	1
HS21060226-05	35AWW06_060321	03 Jun 2021 10:40			01 Jul 2021 09:25	1

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS21060226

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R386900 (0)	**Test Name :** SUBCONTRACT ANALYSIS - DHC/DHB				**Matrix:** Groundwater	
HS21060226-01	35AWW19_060321	03 Jun 2021 07:20			02 Jul 2021 17:44	1
HS21060226-02	35AWW23_060321	03 Jun 2021 08:10			02 Jul 2021 17:44	1
HS21060226-03	35AWW20_060321	03 Jun 2021 09:00			02 Jul 2021 17:44	1
HS21060226-05	35AWW06_060321	03 Jun 2021 10:40			02 Jul 2021 17:44	1

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS21060226

QC BATCH REPORT

Batch ID: 166919 (0) **Instrument: ICPMS06** **Method: METALS BY ICPMS BY SW6020A**

MBLK Sample ID: **MBLK-166919** Units: **mg/L** Analysis Date: **17-Jun-2021 11:22**
Client ID: Run ID: **ICPMS06_385722** SeqNo: **6140506** PrepDate: **16-Jun-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.00100	0.00500								U

LCS Sample ID: **LCS-166919** Units: **mg/L** Analysis Date: **17-Jun-2021 11:24**
Client ID: Run ID: **ICPMS06_385722** SeqNo: **6140507** PrepDate: **16-Jun-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.04696	0.00500	0.05	0	93.9	84 - 116				

MS Sample ID: **HS21060700-02MS** Units: **mg/L** Analysis Date: **17-Jun-2021 11:30**
Client ID: Run ID: **ICPMS06_385722** SeqNo: **6140510** PrepDate: **16-Jun-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.04971	0.00500	0.05	0.000489	98.4	84 - 116				

MSD Sample ID: **HS21060700-02MSD** Units: **mg/L** Analysis Date: **17-Jun-2021 11:32**
Client ID: Run ID: **ICPMS06_385722** SeqNo: **6140511** PrepDate: **16-Jun-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.05209	0.00500	0.05	0.000489	103	84 - 116	0.04971	4.67	20	

PDS Sample ID: **HS21060700-02PDS** Units: **mg/L** Analysis Date: **17-Jun-2021 11:34**
Client ID: Run ID: **ICPMS06_385722** SeqNo: **6140512** PrepDate: **16-Jun-2021** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.1138	0.00500	0.1	0.000489	113	80 - 120				

SD Sample ID: **HS21060700-02SD** Units: **mg/L** Analysis Date: **17-Jun-2021 11:28**
Client ID: Run ID: **ICPMS06_385722** SeqNo: **6140509** PrepDate: **16-Jun-2021** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Arsenic	0.00500	0.0250					0.000489	0	10	U

The following samples were analyzed in this batch: HS21060226-03 HS21060226-04

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS21060226

QC BATCH REPORT

Batch ID: R385452 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MBLK Sample ID: **VBLKW-210611** Units: **ug/L** Analysis Date: **11-Jun-2021 13:20**
Client ID: Run ID: **VOA6_385452** SeqNo: **6134131** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1.0	1.0								U
1,1,1-Trichloroethane	0.50	1.0								U
1,1,2,2-Tetrachloroethane	1.0	1.0								U
1,1,2-Trichloroethane	1.0	1.0								U
1,1-Dichloroethane	0.50	1.0								U
1,1-Dichloroethene	0.50	1.0								U
1,1-Dichloropropene	1.0	1.0								U
1,2,3-Trichlorobenzene	1.0	1.0								U
1,2,3-Trichloropropane	1.0	1.0								U
1,2,4-Trichlorobenzene	1.0	1.0								U
1,2,4-Trimethylbenzene	1.0	1.0								U
1,2-Dibromo-3-chloropropane	0.50	1.0								U
1,2-Dibromoethane	0.50	1.0								U
1,2-Dichlorobenzene	1.0	1.0								U
1,2-Dichloroethane	0.50	1.0								U
1,2-Dichloropropane	1.0	1.0								U
1,3,5-Trimethylbenzene	1.0	1.0								U
1,3-Dichlorobenzene	1.0	1.0								U
1,3-Dichloropropane	1.0	1.0								U
1,4-Dichlorobenzene	1.0	1.0								U
2,2-Dichloropropane	0.50	1.0								U
2-Butanone	1.0	2.0								U
2-Chlorotoluene	1.0	1.0								U
2-Hexanone	2.0	2.0								U
4-Chlorotoluene	1.0	1.0								U
4-Isopropyltoluene	1.0	1.0								U
4-Methyl-2-pentanone	2.0	2.0								U
Acetone	2.0	2.0								U
Benzene	0.50	1.0								U
Bromobenzene	1.0	1.0								U
Bromochloromethane	0.50	1.0								U
Bromodichloromethane	0.50	1.0								U
Bromoform	1.0	1.0								U
Bromomethane	1.0	1.0								U

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS21060226

QC BATCH REPORT

Batch ID: R385452 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MBLK Sample ID: **VBLKW-210611** Units: **ug/L** Analysis Date: **11-Jun-2021 13:20**
Client ID: Run ID: **VOA6_385452** SeqNo: **6134131** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	2.0	2.0								U
Carbon tetrachloride	1.0	1.0								U
Chlorobenzene	1.0	1.0								U
Chloroethane	1.0	1.0								U
Chloroform	0.50	1.0								U
Chloromethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
cis-1,3-Dichloropropene	0.50	1.0								U
Dibromochloromethane	1.0	1.0								U
Dibromomethane	0.50	1.0								U
Dichlorodifluoromethane	1.0	1.0								U
Ethylbenzene	1.0	1.0								U
Hexachlorobutadiene	1.0	1.0								U
Isopropylbenzene	1.0	1.0								U
m,p-Xylene	1.0	2.0								U
Methylene chloride	2.0	2.0								U
Naphthalene	1.0	1.0								U
n-Butylbenzene	1.0	1.0								U
n-Propylbenzene	1.0	1.0								U
o-Xylene	1.0	1.0								U
sec-Butylbenzene	1.0	1.0								U
Styrene	1.0	1.0								U
tert-Butylbenzene	1.0	1.0								U
Tetrachloroethene	1.0	1.0								U
Toluene	0.50	1.0								U
trans-1,2-Dichloroethene	0.50	1.0								U
trans-1,3-Dichloropropene	0.50	1.0								U
Trichloroethene	0.50	1.0								U
Trichlorofluoromethane	1.0	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*45.71*	*1.0*	*50*	*0*	*91.4*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*47.77*	*1.0*	*50*	*0*	*95.5*	*85 - 114*				
Surr: Dibromofluoromethane	*44.37*	*1.0*	*50*	*0*	*88.7*	*80 - 119*				
Surr: Toluene-d8	*52.28*	*1.0*	*50*	*0*	*105*	*89 - 112*				

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS21060226

QC BATCH REPORT

Batch ID: R385452 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

LCS Sample ID: **VLCSW-210611** Units: **ug/L** Analysis Date: **11-Jun-2021 12:38**
Client ID: Run ID: **VOA6_385452** SeqNo: **6134130** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	19.62	1.0	20	0	98.1	78 - 124				
1,1,1-Trichloroethane	17.19	1.0	20	0	86.0	74 - 131				
1,1,2,2-Tetrachloroethane	21.35	1.0	20	0	107	71 - 121				
1,1,2-Trichloroethane	19.35	1.0	20	0	96.7	80 - 119				
1,1-Dichloroethane	17.42	1.0	20	0	87.1	77 - 125				
1,1-Dichloroethene	15.79	1.0	20	0	79.0	71 - 131				
1,1-Dichloropropene	18.4	1.0	20	0	92.0	78 - 125				
1,2,3-Trichlorobenzene	24.78	1.0	20	0	124	69 - 129				
1,2,3-Trichloropropane	19.25	1.0	20	0	96.2	73 - 122				
1,2,4-Trichlorobenzene	24.54	1.0	20	0	123	69 - 130				
1,2,4-Trimethylbenzene	19.06	1.0	20	0	95.3	76 - 124				
1,2-Dibromo-3-chloropropane	22.73	1.0	20	0	114	62 - 128				
1,2-Dibromoethane	19.82	1.0	20	0	99.1	77 - 121				
1,2-Dichlorobenzene	19.59	1.0	20	0	98.0	80 - 119				
1,2-Dichloroethane	20.36	1.0	20	0	102	73 - 128				
1,2-Dichloropropane	19.14	1.0	20	0	95.7	78 - 122				
1,3,5-Trimethylbenzene	18.36	1.0	20	0	91.8	75 - 124				
1,3-Dichlorobenzene	19.85	1.0	20	0	99.2	80 - 119				
1,3-Dichloropropane	19.66	1.0	20	0	98.3	80 - 119				
1,4-Dichlorobenzene	19.18	1.0	20	0	95.9	79 - 118				
2,2-Dichloropropane	17.98	1.0	20	0	89.9	60 - 139				
2-Butanone	37.73	2.0	40	0	94.3	56 - 143				
2-Chlorotoluene	19.09	1.0	20	0	95.5	79 - 122				
2-Hexanone	39.3	2.0	40	0	98.3	57 - 139				
4-Chlorotoluene	18.58	1.0	20	0	92.9	78 - 122				
4-Isopropyltoluene	18.23	1.0	20	0	91.2	77 - 127				
4-Methyl-2-pentanone	37.67	2.0	40	0	94.2	67 - 130				
Acetone	34.2	2.0	40	0	85.5	39 - 160				
Benzene	19.31	1.0	20	0	96.6	79 - 120				
Bromobenzene	20.12	1.0	20	0	101	80 - 120				
Bromochloromethane	18.52	1.0	20	0	92.6	78 - 123				
Bromodichloromethane	19.27	1.0	20	0	96.3	79 - 125				
Bromoform	20.22	1.0	20	0	101	66 - 130				
Bromomethane	19.51	1.0	20	0	97.5	53 - 141				

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS21060226

QC BATCH REPORT

Batch ID: R385452 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

LCS Sample ID: **VLCSW-210611** Units: **ug/L** Analysis Date: **11-Jun-2021 12:38**
Client ID: Run ID: **VOA6_385452** SeqNo: **6134130** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	32.75	2.0	40	0	81.9	64 - 133				
Carbon tetrachloride	17.83	1.0	20	0	89.1	72 - 136				
Chlorobenzene	18	1.0	20	0	90.0	82 - 118				
Chloroethane	21.47	1.0	20	0	107	60 - 138				
Chloroform	17.85	1.0	20	0	89.2	79 - 124				
Chloromethane	16.94	1.0	20	0	84.7	50 - 139				
cis-1,2-Dichloroethene	18.59	1.0	20	0	93.0	78 - 123				
cis-1,3-Dichloropropene	20.3	1.0	20	0	102	75 - 124				
Dibromochloromethane	20.21	1.0	20	0	101	74 - 126				
Dibromomethane	19.91	1.0	20	0	99.6	79 - 123				
Dichlorodifluoromethane	17.73	1.0	20	0	88.7	32 - 152				
Ethylbenzene	19.79	1.0	20	0	98.9	79 - 121				
Hexachlorobutadiene	24.14	1.0	20	0	121	66 - 134				
Isopropylbenzene	18.19	1.0	20	0	90.9	72 - 131				
m,p-Xylene	37.46	2.0	40	0	93.7	80 - 121				
Methylene chloride	18.95	2.0	20	0	94.8	74 - 124				
Naphthalene	22.28	1.0	20	0	111	61 - 128				
n-Butylbenzene	18.07	1.0	20	0	90.3	75 - 128				
n-Propylbenzene	18.17	1.0	20	0	90.8	76 - 126				
o-Xylene	19.17	1.0	20	0	95.8	78 - 122				
sec-Butylbenzene	17.36	1.0	20	0	86.8	77 - 126				
Styrene	19.33	1.0	20	0	96.7	78 - 123				
tert-Butylbenzene	17.82	1.0	20	0	89.1	78 - 124				
Tetrachloroethene	19.11	1.0	20	0	95.5	74 - 129				
Toluene	18.09	1.0	20	0	90.5	80 - 121				
trans-1,2-Dichloroethene	17.22	1.0	20	0	86.1	75 - 124				
trans-1,3-Dichloropropene	20.22	1.0	20	0	101	73 - 127				
Trichloroethene	19.82	1.0	20	0	99.1	79 - 123				
Trichlorofluoromethane	15.32	1.0	20	0	76.6	65 - 141				
Vinyl chloride	16.4	1.0	20	0	82.0	58 - 137				
Surr: 1,2-Dichloroethane-d4	*50.92*	*1.0*	*50*	*0*	*102*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*49.28*	*1.0*	*50*	*0*	*98.6*	*85 - 114*				
Surr: Dibromofluoromethane	*48.34*	*1.0*	*50*	*0*	*96.7*	*80 - 119*				
Surr: Toluene-d8	*46.79*	*1.0*	*50*	*0*	*93.6*	*89 - 112*				

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS21060226

QC BATCH REPORT

Batch ID: R385452 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS21060181-06MS** Units: **ug/L** Analysis Date: **11-Jun-2021 15:06**
Client ID: Run ID: **VOA6_385452** SeqNo: **6134136** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	18.86	1.0	20	0	94.3	78 - 124				
1,1,1-Trichloroethane	16.78	1.0	20	0	83.9	74 - 131				
1,1,2,2-Tetrachloroethane	19.99	1.0	20	0	99.9	71 - 121				
1,1,2-Trichloroethane	18.33	1.0	20	0	91.6	80 - 119				
1,1-Dichloroethane	16.09	1.0	20	0.4628	78.1	77 - 125				
1,1-Dichloroethene	15.81	1.0	20	0	79.0	71 - 131				
1,1-Dichloropropene	18.91	1.0	20	0	94.6	78 - 125				
1,2,3-Trichlorobenzene	21.94	1.0	20	0	110	69 - 129				
1,2,3-Trichloropropane	18.52	1.0	20	0	92.6	73 - 122				
1,2,4-Trichlorobenzene	22.2	1.0	20	0	111	69 - 130				
1,2,4-Trimethylbenzene	18.73	1.0	20	0	93.7	76 - 124				
1,2-Dibromo-3-chloropropane	21.39	1.0	20	0	107	62 - 128				
1,2-Dibromoethane	18.18	1.0	20	0	90.9	77 - 121				
1,2-Dichlorobenzene	18.44	1.0	20	0	92.2	80 - 119				
1,2-Dichloroethane	17.91	1.0	20	0	89.5	73 - 128				
1,2-Dichloropropane	17.69	1.0	20	0	88.4	78 - 122				
1,3,5-Trimethylbenzene	19.14	1.0	20	0	95.7	75 - 124				
1,3-Dichlorobenzene	19.04	1.0	20	0	95.2	80 - 119				
1,3-Dichloropropane	18.31	1.0	20	0	91.6	80 - 119				
1,4-Dichlorobenzene	18.42	1.0	20	0	92.1	79 - 118				
2,2-Dichloropropane	16.91	1.0	20	0	84.6	60 - 139				
2-Butanone	31.43	2.0	40	0	78.6	56 - 143				
2-Chlorotoluene	19.2	1.0	20	0	96.0	79 - 122				
2-Hexanone	39.18	2.0	40	0	98.0	57 - 139				
4-Chlorotoluene	18.46	1.0	20	0	92.3	78 - 122				
4-Isopropyltoluene	19.84	1.0	20	0	99.2	77 - 127				
4-Methyl-2-pentanone	37.09	2.0	40	0	92.7	67 - 130				
Acetone	27.14	2.0	40	0	67.9	39 - 160				
Benzene	17.84	1.0	20	0	89.2	79 - 120				
Bromobenzene	19.52	1.0	20	0	97.6	80 - 120				
Bromochloromethane	16	1.0	20	0	80.0	78 - 123				
Bromodichloromethane	17.55	1.0	20	0	87.8	79 - 125				
Bromoform	18.88	1.0	20	0	94.4	66 - 130				
Bromomethane	16.43	1.0	20	0	82.1	53 - 141				

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS21060226

QC BATCH REPORT

Batch ID: R385452 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS21060181-06MS** Units: **ug/L** Analysis Date: **11-Jun-2021 15:06**
Client ID: Run ID: **VOA6_385452** SeqNo: **6134136** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	29.31	2.0	40	0	73.3	64 - 133				
Carbon tetrachloride	19.99	1.0	20	0	99.9	72 - 136				
Chlorobenzene	17.7	1.0	20	0	88.5	82 - 118				
Chloroethane	19.34	1.0	20	0	96.7	60 - 138				
Chloroform	15.59	1.0	20	0	77.9	79 - 124				S
Chloromethane	10.21	1.0	20	0	51.1	50 - 139				
cis-1,2-Dichloroethene	16.23	1.0	20	0	81.1	78 - 123				
cis-1,3-Dichloropropene	18.26	1.0	20	0	91.3	75 - 124				
Dibromochloromethane	18.63	1.0	20	0	93.1	74 - 126				
Dibromomethane	17.26	1.0	20	0	86.3	79 - 123				
Dichlorodifluoromethane	10.45	1.0	20	0	52.2	32 - 152				
Ethylbenzene	20	1.0	20	0	100	79 - 121				
Hexachlorobutadiene	23.92	1.0	20	0	120	66 - 134				
Isopropylbenzene	19.77	1.0	20	0	98.9	72 - 131				
m,p-Xylene	37.79	2.0	40	0	94.5	80 - 121				
Methylene chloride	15.4	2.0	20	0	77.0	74 - 124				
Naphthalene	20.42	1.0	20	0	102	61 - 128				
n-Butylbenzene	19.81	1.0	20	0	99.1	75 - 128				
n-Propylbenzene	19.68	1.0	20	0	98.4	76 - 126				
o-Xylene	18.54	1.0	20	0	92.7	78 - 122				
sec-Butylbenzene	20.05	1.0	20	0	100	77 - 126				
Styrene	18.39	1.0	20	0	91.9	78 - 123				
tert-Butylbenzene	19.47	1.0	20	0	97.4	78 - 124				
Tetrachloroethene	21.42	1.0	20	0	107	74 - 129				
Toluene	17.91	1.0	20	0	89.6	80 - 121				
trans-1,2-Dichloroethene	15.55	1.0	20	0	77.7	75 - 124				
trans-1,3-Dichloropropene	18.52	1.0	20	0	92.6	73 - 127				
Trichloroethene	19.89	1.0	20	0	99.4	79 - 123				
Trichlorofluoromethane	15.45	1.0	20	0	77.2	65 - 141				
Vinyl chloride	13.89	1.0	20	0	69.4	58 - 137				
Surr: 1,2-Dichloroethane-d4	*46.25*	*1.0*	*50*	*0*	*92.5*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*50.1*	*1.0*	*50*	*0*	*100*	*85 - 114*				
Surr: Dibromofluoromethane	*45.04*	*1.0*	*50*	*0*	*90.1*	*80 - 119*				
Surr: Toluene-d8	*50.2*	*1.0*	*50*	*0*	*100*	*89 - 112*				

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS21060226

QC BATCH REPORT

Batch ID: R385452 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS21060181-06MSD** Units: **ug/L** Analysis Date: **11-Jun-2021 15:27**
Client ID: Run ID: **VOA6_385452** SeqNo: **6134137** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	18.4	1.0	20	0	92.0	78 - 124	18.86	2.49	20	
1,1,1-Trichloroethane	16.42	1.0	20	0	82.1	74 - 131	16.78	2.19	20	
1,1,2,2-Tetrachloroethane	21.73	1.0	20	0	109	71 - 121	19.99	8.34	20	
1,1,2-Trichloroethane	18.6	1.0	20	0	93.0	80 - 119	18.33	1.49	20	
1,1-Dichloroethane	15.96	1.0	20	0.4628	77.5	77 - 125	16.09	0.834	20	
1,1-Dichloroethene	15.13	1.0	20	0	75.6	71 - 131	15.81	4.41	20	
1,1-Dichloropropene	18.55	1.0	20	0	92.7	78 - 125	18.91	1.94	20	
1,2,3-Trichlorobenzene	25.65	1.0	20	0	128	69 - 129	21.94	15.6	20	
1,2,3-Trichloropropane	20.51	1.0	20	0	103	73 - 122	18.52	10.2	20	
1,2,4-Trichlorobenzene	25.16	1.0	20	0	126	69 - 130	22.2	12.5	20	
1,2,4-Trimethylbenzene	19.94	1.0	20	0	99.7	76 - 124	18.73	6.26	20	
1,2-Dibromo-3-chloropropane	24.36	1.0	20	0	122	62 - 128	21.39	13	20	
1,2-Dibromoethane	18.88	1.0	20	0	94.4	77 - 121	18.18	3.78	20	
1,2-Dichlorobenzene	20.23	1.0	20	0	101	80 - 119	18.44	9.27	20	
1,2-Dichloroethane	17.85	1.0	20	0	89.2	73 - 128	17.91	0.321	20	
1,2-Dichloropropane	17.25	1.0	20	0	86.2	78 - 122	17.69	2.52	20	
1,3,5-Trimethylbenzene	20.2	1.0	20	0	101	75 - 124	19.14	5.41	20	
1,3-Dichlorobenzene	20.44	1.0	20	0	102	80 - 119	19.04	7.05	20	
1,3-Dichloropropane	18.51	1.0	20	0	92.6	80 - 119	18.31	1.09	20	
1,4-Dichlorobenzene	19.9	1.0	20	0	99.5	79 - 118	18.42	7.73	20	
2,2-Dichloropropane	16.49	1.0	20	0	82.5	60 - 139	16.91	2.5	20	
2-Butanone	31.29	2.0	40	0	78.2	56 - 143	31.43	0.441	20	
2-Chlorotoluene	20.32	1.0	20	0	102	79 - 122	19.2	5.64	20	
2-Hexanone	41.57	2.0	40	0	104	57 - 139	39.18	5.92	20	
4-Chlorotoluene	19.67	1.0	20	0	98.3	78 - 122	18.46	6.33	20	
4-Isopropyltoluene	21.2	1.0	20	0	106	77 - 127	19.84	6.65	20	
4-Methyl-2-pentanone	39.32	2.0	40	0	98.3	67 - 130	37.09	5.82	20	
Acetone	27.2	2.0	40	0	68.0	39 - 160	27.14	0.194	20	
Benzene	17.42	1.0	20	0	87.1	79 - 120	17.84	2.44	20	
Bromobenzene	20.44	1.0	20	0	102	80 - 120	19.52	4.62	20	
Bromochloromethane	15.93	1.0	20	0	79.6	78 - 123	16	0.475	20	
Bromodichloromethane	17.22	1.0	20	0	86.1	79 - 125	17.55	1.93	20	
Bromoform	19.32	1.0	20	0	96.6	66 - 130	18.88	2.31	20	
Bromomethane	15.41	1.0	20	0	77.1	53 - 141	16.43	6.4	20	

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS21060226

QC BATCH REPORT

Batch ID: R385452 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS21060181-06MSD** Units: **ug/L** Analysis Date: **11-Jun-2021 15:27**
Client ID: Run ID: **VOA6_385452** SeqNo: **6134137** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Carbon disulfide	28.87	2.0	40	0	72.2	64 - 133	29.31	1.51	20	
Carbon tetrachloride	19.1	1.0	20	0	95.5	72 - 136	19.99	4.52	20	
Chlorobenzene	17.83	1.0	20	0	89.2	82 - 118	17.7	0.739	20	
Chloroethane	19.85	1.0	20	0	99.2	60 - 138	19.34	2.56	20	
Chloroform	15.51	1.0	20	0	77.5	79 - 124	15.59	0.535	20	S
Chloromethane	10.3	1.0	20	0	51.5	50 - 139	10.21	0.805	20	
cis-1,2-Dichloroethene	15.86	1.0	20	0	79.3	78 - 123	16.23	2.27	20	
cis-1,3-Dichloropropene	18.01	1.0	20	0	90.0	75 - 124	18.26	1.4	20	
Dibromochloromethane	19.08	1.0	20	0	95.4	74 - 126	18.63	2.41	20	
Dibromomethane	17.8	1.0	20	0	89.0	79 - 123	17.26	3.06	20	
Dichlorodifluoromethane	9.969	1.0	20	0	49.8	32 - 152	10.45	4.69	20	
Ethylbenzene	19.52	1.0	20	0	97.6	79 - 121	20	2.44	20	
Hexachlorobutadiene	25.68	1.0	20	0	128	66 - 134	23.92	7.12	20	
Isopropylbenzene	19.65	1.0	20	0	98.2	72 - 131	19.77	0.614	20	
m,p-Xylene	37.83	2.0	40	0	94.6	80 - 121	37.79	0.114	20	
Methylene chloride	15.4	2.0	20	0	77.0	74 - 124	15.4	0.0377	20	
Naphthalene	25.54	1.0	20	0	128	61 - 128	20.42	22.3	20	R
n-Butylbenzene	21.41	1.0	20	0	107	75 - 128	19.81	7.76	20	
n-Propylbenzene	20.55	1.0	20	0	103	76 - 126	19.68	4.3	20	
o-Xylene	18.51	1.0	20	0	92.5	78 - 122	18.54	0.138	20	
sec-Butylbenzene	21.2	1.0	20	0	106	77 - 126	20.05	5.57	20	
Styrene	18.66	1.0	20	0	93.3	78 - 123	18.39	1.46	20	
tert-Butylbenzene	20.89	1.0	20	0	104	78 - 124	19.47	7.02	20	
Tetrachloroethene	21.29	1.0	20	0	106	74 - 129	21.42	0.591	20	
Toluene	17.92	1.0	20	0	89.6	80 - 121	17.91	0.0683	20	
trans-1,2-Dichloroethene	15.16	1.0	20	0	75.8	75 - 124	15.55	2.51	20	
trans-1,3-Dichloropropene	18.37	1.0	20	0	91.8	73 - 127	18.52	0.798	20	
Trichloroethene	19.44	1.0	20	0	97.2	79 - 123	19.89	2.26	20	
Trichlorofluoromethane	14.69	1.0	20	0	73.5	65 - 141	15.45	4.98	20	
Vinyl chloride	13.1	1.0	20	0	65.5	58 - 137	13.89	5.83	20	
Surr: 1,2-Dichloroethane-d4	*45.56*	*1.0*	*50*	*0*	*91.1*	*81 - 118*	*46.25*	*1.5*	*20*	
Surr: 4-Bromofluorobenzene	*48.67*	*1.0*	*50*	*0*	*97.3*	*85 - 114*	*50.1*	*2.9*	*20*	
Surr: Dibromofluoromethane	*45.03*	*1.0*	*50*	*0*	*90.1*	*80 - 119*	*45.04*	*0.0349*	*20*	
Surr: Toluene-d8	*50.9*	*1.0*	*50*	*0*	*102*	*89 - 112*	*50.2*	*1.37*	*20*	

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS21060226

QC BATCH REPORT

Batch ID: R385452 (0)	Instrument: VOA6	Method: VOLATILES ORGANICS BY METHOD 8260C

The following samples were analyzed in this batch:

HS21060226-01	HS21060226-02	HS21060226-03	HS21060226-04
HS21060226-05	HS21060226-06	HS21060226-07	HS21060226-08

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS21060226

QC BATCH REPORT

Batch ID: R385033 (0) **Instrument: ICS-Integrion** **Method: ANIONS BY SW9056A**

MBLK Sample ID: **MBLK** Units: **mg/L** Analysis Date: **04-Jun-2021 11:25**
Client ID: Run ID: **ICS-Integrion_385033** SeqNo: **6124234** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	0.500	0.500								U
Nitrogen, Nitrate (As N)	0.100	0.100								U
Nitrogen, Nitrite (As N)	0.100	0.100								U
Sulfate	0.500	0.500								U

LCS Sample ID: **LCS** Units: **mg/L** Analysis Date: **04-Jun-2021 11:32**
Client ID: Run ID: **ICS-Integrion_385033** SeqNo: **6124235** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	19.5	0.500	20	0	97.5	80 - 120				
Nitrogen, Nitrate (As N)	3.711	0.100	4	0	92.8	80 - 120				
Nitrogen, Nitrite (As N)	4.266	0.100	4	0	107	80 - 120				
Sulfate	19.45	0.500	20	0	97.2	80 - 120				

MS Sample ID: **HS21060226-05MS** Units: **mg/L** Analysis Date: **04-Jun-2021 14:32**
Client ID: **35AWW06_060321** Run ID: **ICS-Integrion_385033** SeqNo: **6124246** PrepDate: DF: **100**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	1946	50.0	1000	940.1	101	80 - 120				
Nitrogen, Nitrate (As N)	202.7	10.0	200	0	101	80 - 120				
Nitrogen, Nitrite (As N)	225.8	10.0	200	0	113	80 - 120				
Sulfate	1215	50.0	1000	197	102	80 - 120				

MS Sample ID: **HS21060222-01MS** Units: **mg/L** Analysis Date: **04-Jun-2021 15:33**
Client ID: Run ID: **ICS-Integrion_385033** SeqNo: **6124253** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	35.46	0.500	10	26.62	88.5	80 - 120				
Nitrogen, Nitrate (As N)	3.918	0.100	2	1.995	96.1	80 - 120				
Nitrogen, Nitrite (As N)	2.203	0.100	2	0.1352	103	80 - 120				
Sulfate	40.47	0.500	10	32.24	82.4	80 - 120				

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS21060226

QC BATCH REPORT

Batch ID: R385033 (0) **Instrument: ICS-Integrion** **Method: ANIONS BY SW9056A**

MSD Sample ID: **HS21060226-05MSD** Units: **mg/L** Analysis Date: **04-Jun-2021 14:39**
Client ID: **35AWW06_060321** Run ID: **ICS-Integrion_385033** SeqNo: **6124247** PrepDate: DF: **100**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	1910	50.0	1000	940.1	97.0	80 - 120	1946	1.86	20	
Nitrogen, Nitrate (As N)	198.9	10.0	200	0	99.4	80 - 120	202.7	1.9	20	
Nitrogen, Nitrite (As N)	221.6	10.0	200	0	111	80 - 120	225.8	1.88	20	
Sulfate	1178	50.0	1000	197	98.1	80 - 120	1215	3.08	20	

MSD Sample ID: **HS21060222-01MSD** Units: **mg/L** Analysis Date: **04-Jun-2021 15:40**
Client ID: Run ID: **ICS-Integrion_385033** SeqNo: **6124254** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	36.28	0.500	10	26.62	96.7	80 - 120	35.46	2.28	20	
Nitrogen, Nitrate (As N)	4.026	0.100	2	1.995	102	80 - 120	3.918	2.73	20	
Nitrogen, Nitrite (As N)	2.252	0.100	2	0.1352	106	80 - 120	2.203	2.19	20	
Sulfate	41.73	0.500	10	32.24	94.9	80 - 120	40.47	3.05	20	

The following samples were analyzed in this batch: HS21060226-01 HS21060226-02 HS21060226-03 HS21060226-05

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS21060226

QC BATCH REPORT

Batch ID: R385048 (0) **Instrument: TOC_04** **Method: TOTAL ORGANIC CARBON BY E415.1**

MBLK Sample ID: **MBLK3-06042021** Units: **mg/L** Analysis Date: **05-Jun-2021 01:21**
Client ID: Run ID: **TOC_04_385048** SeqNo: **6124564** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	0.500	1.00								U

LCS Sample ID: **LCS3-06042021** Units: **mg/L** Analysis Date: **05-Jun-2021 01:33**
Client ID: Run ID: **TOC_04_385048** SeqNo: **6124565** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	10.96	1.00	10	0	110	85 - 115				

LCSD Sample ID: **LCSD3-06042021** Units: **mg/L** Analysis Date: **05-Jun-2021 01:45**
Client ID: Run ID: **TOC_04_385048** SeqNo: **6124566** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	10.84	1.00	10	0	108	85 - 115	10.96	1.1	20	

MS Sample ID: **HS21060181-12MS** Units: **mg/L** Analysis Date: **05-Jun-2021 02:12**
Client ID: Run ID: **TOC_04_385048** SeqNo: **6124568** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	19.24	1.00	10	7.497	117	80 - 120				

The following samples were analyzed in this batch: HS21060226-01 HS21060226-02 HS21060226-03 HS21060226-05

Revision: 1

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ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: **HS21060226**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL/SDL

Acronym	Description
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitaion Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

Unit Reported	Description
mg/L	Milligrams per Liter

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CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	21-022-0	26-Mar-2022
Dept of Defense	PJLA L20-507-R2	22-Dec-2021
Illinois	2000322021-7	09-May-2022
Kansas	E-10352 2020-2021	31-Jul-2021
Kentucky	123043, 2021-2022	30-Apr-2022
Louisiana	03087, 2021-2022	30-Jun-2022
North Carolina	624-2021	31-Dec-2021
Oklahoma	2020-165	31-Aug-2021
Texas	T104704231-21-27	30-Apr-2022
Utah	TX026932021-10	31-Jul-2021

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ALS Houston, US Date: 02-Jul-21

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Work Order: HS21060226

SAMPLE TRACKING

Lab Samp ID	Client Sample ID	Action	Date	Person	New Location
HS21060226-01	35AWW19_060321	Login	6/4/2021 11:10:26 AM	JML	WET104
HS21060226-01	35AWW19_060321	Login	6/4/2021 11:10:26 AM	JML	VOA122
HS21060226-01	35AWW19_060321	Login	6/4/2021 11:10:26 AM	JML	WET104
HS21060226-01	35AWW19_060321	Login	6/4/2021 11:10:26 AM	JML	Sub
HS21060226-02	35AWW23_060321	Login	6/4/2021 11:10:40 AM	JML	WET104
HS21060226-02	35AWW23_060321	Login	6/4/2021 11:10:40 AM	JML	VOA122
HS21060226-02	35AWW23_060321	Login	6/4/2021 11:10:40 AM	JML	WET104
HS21060226-02	35AWW23_060321	Login	6/4/2021 11:10:40 AM	JML	Sub
HS21060226-03	35AWW20_060321	Login	6/4/2021 11:14:56 AM	JML	MET016
HS21060226-03	35AWW20_060321	Login	6/4/2021 11:14:56 AM	JML	WET104
HS21060226-03	35AWW20_060321	Login	6/4/2021 11:14:56 AM	JML	VOA122
HS21060226-03	35AWW20_060321	Login	6/4/2021 11:14:56 AM	JML	WET104
HS21060226-03	35AWW20_060321	Login	6/4/2021 11:14:56 AM	JML	Sub
HS21060226-04	LHSMW06_060321	Login	6/4/2021 11:21:33 AM	JML	MET016
HS21060226-04	LHSMW06_060321	Login	6/4/2021 11:21:33 AM	JML	VOA122
HS21060226-05	35AWW06_060321	Login	6/4/2021 11:28:32 AM	JML	WET104
HS21060226-05	35AWW06_060321	Login	6/4/2021 11:28:32 AM	JML	VOA122
HS21060226-05	35AWW06_060321	Login	6/4/2021 11:28:32 AM	JML	WET104
HS21060226-05	35AWW06_060321	Login	6/4/2021 11:28:32 AM	JML	Sub
HS21060226-06	35AWW17_060321	Login	6/4/2021 11:29:08 AM	JML	VOA122
HS21060226-07	35ASW03_060321	Login	6/4/2021 11:29:48 AM	JML	VOA122
HS21060226-08	Trip Blank	Login	6/4/2021 11:30:19 AM	JML	VOA122

Revision:1

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ALS Houston, US Date: 02-Jul-21

Sample Receipt Checklist

Work Order ID: HS21060226 **Date/Time Received:** **04-Jun-2021 09:50**

Client Name: Bhate Environmental **Received by:** **Jared R. Makan**

Completed By:	/S/ Paresh M. Giga	04-Jun-2021 11:31	**Reviewed by:**	/S/ Corey Grandits	04-Jun-2021 13:33
	eSignature	Date/Time		eSignature	Date/Time

Matrices: **GW/Water** Carrier name: **FedEx Priority Overnight**

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	1 Page(s)
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	COC IDs:none
Samplers name present on COC?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	

Temperature(s)/Thermometer(s):	1.3C U/C	IR31
Cooler(s)/Kit(s):	45648	
Date/Time sample(s) sent to storage:	6/4/2021 11:50	

Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:			

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

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bhate ENVIRONMENTAL ASSOCIATES, INC.

1608 13th Avenue South, Suite 300
Birmingham Alabama 35205
Tel: 205-918-4000
Fax: 205-918-4050

Chain of Custody and Analytical Request

Page: ____ of ____

Project/Phase No: NWO1312.0150

COC Number(1): ____

LIMS Number: ____

Facility/Base I.D.: LHAAP

Project/Site Name: LHAAP / Site 58

Client Name:

Collected by: Scott Beesinger

Field Sample ID (30 Characters Max)	Date Collected (dd-mmm-yyyy)	Time Collected (Military) (hhmm)	Sample Depth (beginning - ending)	SA Code (2)	Sample Number (3)	Sample Matrix (4)	Number of containers	VOC	MEE	TOC	Carbon Dioxide	Anions	Arsenic	Ambient Blank Lot Control Number	Equipment Blank Lot Control Number	Trip Blank Lot Control Number	Cooler ID
35AWW19_060321	03 Jun 2021	0720	-	N		WG	11	X	X	X	X	X					
35AWW23_060321	03 Jun 2021	0810	-	N		WG	11	X	X	X	X	X					
35AWW20_060321	03 Jun 2021	0900	-	N		WG	12	X	X	X	X	X	X				
LHSMW06_060321	03 Jun 2021	0955		N		WG	4	X					X				
35AWW06_060321	03 Jun 2021	1040		N		WG	11	X	X	X	X	X					
35AWW17_060321	03 Jun 2021	1130	-	N		WG	3	X									
35ASW03_060321	03 Jun 2021	1145	-	N		WG	3	X									
Trip Blank	03 Jun 2021		-	TB		W	2	X									
			-														
			-														
			-														

Quality Assurance Samples (6)

HS21060226

Bhate Environmental Associates, Inc.
LHAAP-58

COMMENTS: STANDARD TAT Cooler 45648 11631 Temps 1.3°C CFO

Custody Transfers Prior to Receipt by Laboratory

Relinquished by (Signed)	Date	Time	Received by (signed)	Date	Time
1. Scott Beesinger	6/3/21	1430	1. J. Mimmon	6/4/21	09:50
2.			2.		
3.			3.		

Sample Delivery Details / Laboratory Receipt

Delivered Directly to Lab: ____ Shipped ____ No.:

Method of Shipment: ____

Fed Ex ____ Airbill Number: ____

Analytical Lab: ALS 10450 Stanciff Rd. Suite 210 Houston TX 77099 (281) 530-5656

ATTN: SONIA WEST Lab Recipient: Delivery Date/Time:

1.) Chain of Custody Number = date collected + custody number (e.g. 09-02-1999-01)

2.) Sample Type (SA) Codes: N = Normal Sample, TB = Trip Blank (-a) Sample, FD = Field Duplicate (-a) Samples, FR = Field Replicate (-b) Samples, EB = Equipment Blank (-d) Samples, MS = Matrix Spike, SD = Matrix Spike Duplicate, AB = Ambient Blank (-e)

3.) Sample Number: Unique sample number collected from a particular location per day. (e.g. Groundwater sample collected from MW-1 on 10/10/99 = 01, if sampled again on 10/10/99 = 02, etc.)

4.) Matrix Codes: GS = Soil Gas, WG = Groundwater, WS = Surface Water, SO = Soil, SE = Sediment, SL = Sludge, SS = Surface Soil Samples, WQ = Aqueous Blank Samples (trip, equipment, ambient, etc), SQ = Soil Blanks

5.) Sample Analysis Requested: Analytical method requested and number of containers provided for each.

6.) Quality assurance samples are assigned by date (ddmmyy) and the sample number associated with the sample (01, 02, etc) (e.g. Equipment blank collected in association with MW-1 on 10/10/99 will be designated 10109901 in the Equipment Blank Lot Control

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ALS
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887

45648

CUSTODY SEAL

Date: 6/3/21 Time: 1732
Name: Sluge Bee
Company: BHATE

Seal Broke:
Date: 06/04/21

45648 JUN 04 2021

45648

ORIGIN ID:SGRA (903) 930-6199
SCOTT BEESINER
BHATE ENVIRONMENTAL ASSOCIATES
1203-B EAST GRAND AVE. PMB202

MARSHALL, TX 75670
UNITED STATES US

SHIP DATE: 21MAY21
ACTWGT: 1.00 LB MAN
CAD: 0221247/CAFE3409
DIMS: 26x14x14 IN

TO SHIPPING DEPT
ALS LABORATORY GROUP
10450 STANCLIFF RD
SUITE 210
HOUSTON TX 77099
(281) 530-5656
REF: LHAAP-BO 78338-RJ

RMA:

S6DC3/71DC/05A2

FedEx Express

FedEx
TRK# 0221 9473 0843 8842

FRI - 04 JUN 10:30A
PRIORITY OVERNIGHT

AB SGRA

77099
TX-US IAH

#5041156 06/09 5GD19/8987/FF4A

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June 22, 2021 Service Request No:R2105466

Ragen Giga
ALS Environmental - US
10450 Stancliff Rd Suite 210
Houston, TX 77099

Laboratory Results for: LHAAP / Site 58

Dear Ragen,

Enclosed are the results of the sample(s) submitted to our laboratory June 04, 2021
For your reference, these analyses have been assigned our service request number **R2105466.**

All testing was performed according to our laboratory's quality assurance program and met the requirements of the TNI standards except as noted in the case narrative report. Any testing not included in the lab's accreditation is identified on a Non-Certified Analytes report. All results are intended to be considered in their entirety. ALS Environmental is not responsible for use of less than the complete report. Results apply only to the individual samples submitted to the lab for analysis, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s), and represented by Laboratory Control Sample control limits. Any events, such as QC failures or Holding Time exceedances, which may add to the uncertainty are explained in the report narrative or are flagged with qualifiers. The flags are explained in the Report Qualifiers and Definitions page of this report.

Please contact me if you have any questions. My extension is 7471. You may also contact me via email at Brady.Kalkman@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Brady Kalkman
Project Manager

ADDRESS 1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
PHONE +1 585 288 5380 | FAX +1 585 288 8475
ALS Group USA, Corp.
dba ALS Environmental

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Narrative Documents

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

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1565 Jefferson Rd, Building 300, Rochester, NY 14623 | 585-288-5380 | www.alsglobal.com

Client: ALS Environmental - US
Project: LHAAP / Site 58
Sample Matrix: Water

Service Request: R2105466
Date Received: 06/03/2021 - 06/04/2021

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples for the Tier level IV requested by the client.

Sample Receipt:

Ten water samples were received for analysis at ALS Environmental on 06/03/2021 - 06/04/2021. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

Semivoa GC:

No significant anomalies were noted with this analysis.

Approved by _____ Date 06/22/2021

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SAMPLE DETECTION SUMMARY

CLIENT ID: 35AWW09-060221-a			Lab ID: R2105466-002			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Acetic Acid	0.63	J	0.56	4.0	mg/L	Organic Acids

CLIENT ID: 03WW01_060221			Lab ID: R2105466-003			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Acetic Acid	3.3	J	0.56	4.0	mg/L	Organic Acids

CLIENT ID: 35AWW08_060221			Lab ID: R2105466-004			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Acetic Acid	1.2	J	0.56	4.0	mg/L	Organic Acids
Lactic Acid	2.1		0.41	2.0	mg/L	Organic Acids

CLIENT ID: 35AWW11_060221			Lab ID: R2105466-005			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Acetic Acid	0.87	J	0.56	4.0	mg/L	Organic Acids

CLIENT ID: LHSMW07_060221			Lab ID: R2105466-006			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Acetic Acid	0.65	J	0.56	4.0	mg/L	Organic Acids

CLIENT ID: 35AWW19_060321			Lab ID: R2105466-007			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Acetic Acid	0.62	J	0.56	4.0	mg/L	Organic Acids

CLIENT ID: 35AWW23_060321			Lab ID: R2105466-008			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Acetic Acid	9.1		0.56	4.0	mg/L	Organic Acids

CLIENT ID: 35AWW20_060321			Lab ID: R2105466-009			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Acetic Acid	0.61	J	0.56	4.0	mg/L	Organic Acids

CLIENT ID: 35AWW06_060321			Lab ID: R2105466-010			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Acetic Acid	1.3	J	0.56	4.0	mg/L	Organic Acids

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Sample Receipt Information

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

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Client: ALS Environmental - US **Service Request:**R2105466
Project: LHAAP / Site 58/NW01312.0150

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
R2105466-001	35AWW09_060221	6/2/2021	0710
R2105466-002	35AWW09-060221-a	6/2/2021	0710
R2105466-003	03WW01_060221	6/2/2021	0805
R2105466-004	35AWW08_060221	6/2/2021	0855
R2105466-005	35AWW11_060221	6/2/2021	0945
R2105466-006	LHSMW07_060221	6/2/2021	1035
R2105466-007	35AWW19_060321	6/3/2021	0720
R2105466-008	35AWW23_060321	6/3/2021	0810
R2105466-009	35AWW20_060321	6/3/2021	0900
R2105466-010	35AWW06_060321	6/3/2021	1040

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01072415

bhate ENVIRONMENTAL CONTRACTING LIMITED

1608 13th Avenue South, Suite 300
Birmingham Alabama 35205
Tel: 205-918-4000
Fax: 205-918-4050

Chain of Custody and Analytical Request

Page: ____ of ____

Project/Phase No: NWO1312.0150

COC Number(1): ____

LIMS Number: ____

Facility/Base I.D.: LHAAP

Project/Site Name: LHAAP / Site 58

Client Name:

Collected by: Scott Beesinger

Field Sample ID (30 Characters Max)	Date Collected (dd-mmm-yyyy)	Time Collected (Military) (hhmm)	Sample Depth (beginning - ending)	SA Code (2)	Sample Number (3)	Sample Matrix (4)	Number of containers	Volatile Fatty Acids										Ambient Blank Lot Control Number	Equipment Blank Lot Control Number	Trip Blank Lot Control Number	Cooler ID
							Sample Analysis Requested (5)											Quality Assurance Samples (6)			
35AWW19_060321	03 JUN 2021	0720	-	N		WG	1	X													
35AWW23_060321	03 JUN 2021	0810	-	N		WG	1	X													
35AWW20_060321	03 JUN 2021	0900	-	N		WG	1	X													
35AWW06_060321	03 JUN 2021	1040		N		WG	1	X													
			-																		
			-																		
			-																		
			-																		
			-																		
			-																		

COMMENTS: STANDARD TAT

Custody Transfers Prior to Receipt by Laboratory

Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1. Scott Beesinger	6/3/21	1430	1.	6/4/21	0935
2.			2.		
3.			3.		

Sample Delivery Details / Laboratory Receipt

Delivered Directly to Lab: ____ Shipped ____ No.:

Method of Shipment: ____

Fed Ex ____ Airbill Number: ____

Analytical Lab: ALS 10450 Stanciff Rd. Suite 210 Houston, TX 77099 (281) 530-5656

ATTN: SONIA WEST Lab Recipient: Delivery Date/Time:

1.) Chain of Custody Number = date collected + custody number (e.g. 09-02-1999-01)

2.) Sample Type (SA) Codes: N = Normal Sample, TB = Trip Blank (-c) Sample, FD = Field Duplicate (-a) Samples, FR = Field Replicate (-b) Samples, EB = Equipment Blank (-d) Samples, MS = Matrix Spike, SD = Matrix Spike Duplicate, AB = Ambient Blank (-e)

3.) Sample Number: Unique sample number collected from a particular location per day. (e.g. Groundwater sample collected from MW-1 on 10/10/99 = 01, if sampled again on 10/10/99 = 02, etc.)

4.) Matrix Codes: GS = Soil Gas, WG = Groundwater, WS = Surface Water, SO = Soil, SE = Sediment, SL = Sludge, SS = Surface Soil Samples, WQ = Aqueous Blank Samples (trip, equipment, ambient, etc), SQ = Soil Blanks

5.) Sample Analysis Requested: Analytical method requested and number of containers provided for each.

6.) Quality assurance samples are assigned by date (ddmmyy) and the sample number associated with the sample (01, 02, etc) (e.g. Equipment blank collected in association with MW-1 on 10/10/99 will be designated 10109901 in the Equ

R2105466 5
ALS Laboratory Group
LHAAP / Site 58

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Cooler Receipt and Preservation Check Form

R2105466 5
ALS Laboratory Group
LHAAP / Site 68

Project/Client _____ Folder Number _____

Cooler received on 6/4/21 by: [illegible]

COURIER: ALS UPS (FEDEX) VELOCITY CLIENT

1	Were **Custody seals** on outside of cooler?	(Y) N	5a	**Perchlorate** samples have required headspace?	Y N (NA)
2	**Custody papers** properly completed (ink, signed)?	(Y) N	5b	Did VOA vials, Alk,or Sulfide have sig* **bubbles**?	Y N (NA)
3	Did all bottles arrive in good **condition** (unbroken)?	(Y) N	6	Where did the bottles originate?	(ALS/ROC) CLIENT
4	Circle: **(Wet Ice)** **Dry Ice** **Gel packs** present?	(Y) N	7	Soil VOA received as: Bulk Encore 5035set	(NA)

3. Temperature Readings Date: 6/4/21 Time: 1030 ID: IR#7 (IR#1) From: (Temp Blank) Sample Bottle

Observed Temp (°C)	2.7						
Within 0-6°C?	(Y) N	Y N	Y N	Y N	Y N	Y N	Y N
If <0°C, were samples frozen?	Y N	Y N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: _____ Ice melted Poorly Packed (described below) Same Day Rule

&Client Approval to Run Samples: _____ Standing Approval Client aware at drop-off Client notified by: _____

All samples held in storage location: R-002 by [illegible] on 6/4/21 at 1035
5035 samples placed in storage location: _____ by _____ on _____ at _____ within 48 hours of sampling? Y N

Cooler Breakdown/Preservation Check**: Date: 6/7/21 Time: 1115 by: [illegible]

9. Were all bottle labels complete (*i.e.* analysis, preservation, etc.)? (YES) NO
10. Did all bottle labels and tags agree with custody papers? (YES) NO
11. Were correct containers used for the tests indicated? (YES) NO
12. Were 5035 vials acceptable (no extra labels, not leaking)? YES NO (N/A)
13. Air Samples: Cassettes / Tubes Intact Y / N with MS Y / N Canisters Pressurized Tedlar® Bags Inflated (N/A)

pH	Lot of test paper	Reagent	Preserved? Yes	Preserved? No	Lot Received	Exp	Sample ID Adjusted	Vol. Added	Lot Added	Final pH
≥12		NaOH								
≤2		HNO_3								
≤2		H_2SO_4								
<4		$NaHSO_4$								
5-9		For 608pest			No=Notify for 3day					
Residual Chlorine (-)		For CN, Phenol, 625, 608pest, 522			If +, contact PM to add $Na_2S_2O_3$ (625, 608, CN), ascorbic (phenol).					
		$Na_2S_2O_3$								
		ZnAcetate	-	-			**VOAs and 1664 Not to be tested before analysis. Otherwise, all bottles of all samples with chemical preservatives are checked (not just representatives).			
		HCl	**	**						

Bottle lot numbers: 90121-06
Explain all Discrepancies/ Other Comments:

H_3PO_4 - 214482 lot

HPROD	BULK
HTR	FLDT
SUB	HGFB
ALS	LL3541

Labels secondary reviewed by: [illegible]

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bhate ENVIRONMENTAL CONSTRUCTION EXCELLENCY

1608 13th Avenue South, Suite 300
Birmingham Alabama 35205
Tel: 205-918-4000
Fax: 205-918-4050

Page: _____ of _____

Project/Phase No: NWO1312.0150

COC Number(1): _____

LIMS Number: _____

Chain of Custody and Analytical Request

Facility/Base I.D.: LHAAP

Project/Site Name: LHAAP / Site 58

Client Name:

Collected by: Scott Beesinger

Field Sample ID (30 Characters Max)	Date Collected (dd-mmm-yyyy)	Time Collected (Military) (hhmm)	Sample Depth (beginning - ending)	SA Code (2)	Sample Number (3)	Sample Matrix (4)	Number of containers	Sample Analysis Requested (5): Volatile Fatty Acids										Quality Assurance Samples (6): Ambient Blank Lot Control Number	Equipment Blank Lot Control Number	Trip Blank Lot Control Number	Cooler ID
35AWW09_060221	02Jun2021	0780	-	N		WG	1	X													
35AWW09_060221_a	02Jun2021	0710	-	FD		WG	1	X													
03WW01_060221	02Jun2021	0805	-	N		WG	1	X													
35AWW08_060221	02Jun2021	0855		N		WG	1	X													
35AWW11_060221	02Jun2021	0945		N		WG	1	X													
LHSMW07_060221	02Jun2021	1035	-	N		WG	1	X													
			-																		
			-																		
			-																		
			-																		
			-																		

COMMENTS: _____

Custody Transfers Prior to Receipt by Laboratory

	Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1.	Scott Beesinger	6/2/21	1430	Mabel Mesa	6/3/21	9:30
2.						
3.						

Sample Delivery Details / Laboratory Receipt

Delivered Directly to Lab: _____ Shipped No.:

_____ Method of Shipment: _____

_____ Fed Ex _____ Airbill Number:

_____ Analytical Lab: ALS 10450 Stancliff Rd. Suite 210 Houston, TX 77099 (281) 530-5656

ATTN: SONIA WEST Lab Recipient: Delivery Date/Time:

1.) Chain of Custody Number = date collected + custody number (e.g. 09-02-1999-01)

2.) Sample Type (SA) Codes: N = Normal Sample, TB = Trip Blank (-c) Sample, FD = Field Duplicate (-a) Samples, FR = Field Replicate (-b) Samples, EB = Equipment Blank (-d) Samples, MS = Matrix Spike, SD = Matrix Spike Duplicate, AB = Ambient Blank (-e)

3.) Sample Number: Unique sample number collected from a particular location per day. (e.g. Groundwater sample collected from MW-1 on 10/10/99 = 01, if sampled again on 10/10/99 = 02, etc.)

4.) Matrix Codes: GS = Soil Gas, WG = Groundwater, WS = Surface Water, SO = Soil, SE = Sediment, SL = Sludge, SS = Surface Soil Samples, WQ = Aqueous Blank Samples (trip, equipment, ambient, etc), SQ = Soil Blanks

5.) Sample Analysis Requested: Analytical method requested and number of containers provided for each.

6.) Quality assurance samples are assigned by date (ddmmyy) and the sample number associated with the sample (01, 02, etc) (e.g. Equipment blank collected in association with MW-1 on 10/10/99 will be designated 10109901 in the Eq

R2105466 5
ALS Laboratory Group
LHAAP / Site 58

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Cooler Receipt and Preservation Check Form

R2105466 5
ALS Laboratory Group
LHAAP / Site 68

Project/Client _____ Folder Number _____

Cooler received on 6/3/21 by: MM

COURIER: ALS UPS (FEDEX) VELOCITY CLIENT

1	Were **Custody seals** on outside of cooler?	(Y)	N
2	**Custody papers** properly completed (ink, signed)?	(Y)	N
3	Did all bottles arrive in good **condition** (unbroken)?	(Y)	N
4	Circle: (Wet Ice) **Dry Ice Gel packs** present?	(Y)	N

5a	**Perchlorate** samples have required headspace?	Y	N	(NA)
5b	Did VOA vials, Alk,or Sulfide have sig* **bubbles**?	Y	N	(NA)
6	Where did the bottles originate?	(ALS/ROC)	CLIENT	
7	Soil VOA received as: Bulk Encore 5035set	(NA)		

3. Temperature Readings Date: 6/3/21 Time: 10:03 ID: IR#7 (IR#1) From: (Temp Blank) Sample Bottle

Observed Temp (°C)	3.6						
Within 0-6°C?	(Y) N	Y N	Y N	Y N	Y N	Y N	Y N
If <0°C, were samples frozen?	Y N	Y N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: _____ Ice melted Poorly Packed (described below) Same Day Rule

&Client Approval to Run Samples: _____ Standing Approval Client aware at drop-off Client notified by: _____

All samples held in storage location: R1002 by MM on 6/3/21 at 10:05
5035 samples placed in storage location: _____ by _____ on _____ at _____ within 48 hours of sampling? Y N

Cooler Breakdown/Preservation Check**: Date: 6/3/21 Time: 1425 by: DH

9. Were all bottle labels complete (*i.e.* analysis, preservation, etc.)? YES NO
10. Did all bottle labels and tags agree with custody papers? YES NO
11. Were correct containers used for the tests indicated? YES NO
12. Were 5035 vials acceptable (no extra labels, not leaking)? YES NO N/A
13. Air Samples: Cassettes / Tubes Intact Y / N with MS Y / N Canisters Pressurized Tedlar® Bags Inflated N/A

pH	Lot of test paper	Reagent	Preserved? Yes	Preserved? No	Lot Received	Exp	Sample ID Adjusted	Vol. Added	Lot Added	Final pH
≥12		NaOH								
≤2		HNO_3								
≤2		H_2SO_4								
<4		$NaHSO_4$								
5-9		For 608pest			No=Notify for 3day					
Residual Chlorine (-)		For CN, Phenol, 625, 608pest, 522			If +, contact PM to add $Na_2S_2O_3$ (625, 608, CN), ascorbic (phenol).					
		$Na_2S_2O_3$								
		ZnAcetate	-	-			**VOAs and 1664 Not to be tested before analysis. Otherwise, all bottles of all samples with chemical preservatives are checked (not just representatives).			
		HCl	**	**						

Bottle lot numbers: 9012L-06
Explain all Discrepancies/ Other Comments:

HPROD	BULK
HTR	FLDT
SUB	HGFB
ALS	LL3541

Labels secondary reviewed by: DH
PC Secondary Review: _____

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

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dba ALS Environmental

Internal Chain of Custody Report

Client: ALS Environmental - US **Service Request:** R2105466
Project: LHAAP / Site 58/NW01312.0150

Bottle ID	Methods	Date	Time	Sample Location / User	Disposed On
R2105466-001.01					
	Organic Acids				
		6/3/2021	1328	SMO / GLAFORCE	
		6/3/2021	1328	R-002 / GLAFORCE	
		6/8/2021	1154	In Lab / AFELSER	
		6/8/2021	1523	R-002 / AFELSER	
R2105466-002.01					
	Organic Acids				
		6/3/2021	1328	SMO / GLAFORCE	
		6/3/2021	1328	R-002 / GLAFORCE	
		6/8/2021	1154	In Lab / AFELSER	
		6/8/2021	1523	R-002 / AFELSER	
		6/17/2021	1444	In Lab / AFELSER	
		6/18/2021	0710	R-002 / AFELSER	
R2105466-003.01					
	Organic Acids				
		6/3/2021	1328	SMO / GLAFORCE	
		6/3/2021	1328	R-002 / GLAFORCE	
		6/8/2021	1154	In Lab / AFELSER	
		6/8/2021	1523	R-002 / AFELSER	
		6/17/2021	1444	In Lab / AFELSER	
		6/18/2021	0710	R-002 / AFELSER	
R2105466-004.01					
	Organic Acids				
		6/3/2021	1328	SMO / GLAFORCE	
		6/3/2021	1328	R-002 / GLAFORCE	
		6/8/2021	1155	In Lab / AFELSER	
		6/8/2021	1523	R-002 / AFELSER	
		6/17/2021	1444	In Lab / AFELSER	
		6/18/2021	0710	R-002 / AFELSER	
R2105466-005.01					
	Organic Acids				
		6/3/2021	1328	SMO / GLAFORCE	
		6/3/2021	1328	R-002 / GLAFORCE	
		6/8/2021	1155	In Lab / AFELSER	
		6/8/2021	1523	R-002 / AFELSER	
R2105466-006.01					
	Organic Acids				
		6/3/2021	1328	SMO / GLAFORCE	
		6/3/2021	1328	R-002 / GLAFORCE	
		6/8/2021	1155	In Lab / AFELSER	

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ALS Group USA, Corp.
dba ALS Environmental

Internal Chain of Custody Report

Client: ALS Environmental - US **Service Request:** R2105466
Project: LHAAP / Site 58/NW01312.0150

Bottle ID	Methods	Date	Time	Sample Location / User	Disposed On
	Organic Acids				
		6/8/2021	1523	R-002 / AFELSER	
R2105466-007.01					
	Organic Acids				
		6/4/2021	1300	SMO / JJANSON	
		6/7/2021	1210	R-002 / GLAFORCE	
		6/8/2021	1155	In Lab / AFELSER	
		6/8/2021	1523	R-002 / AFELSER	
R2105466-008.01					
	Organic Acids				
		6/4/2021	1300	SMO / JJANSON	
		6/7/2021	1210	R-002 / GLAFORCE	
		6/8/2021	1155	In Lab / AFELSER	
		6/8/2021	1523	R-002 / AFELSER	
		6/17/2021	1444	In Lab / AFELSER	
		6/18/2021	0710	R-002 / AFELSER	
R2105466-009.01					
	Organic Acids				
		6/4/2021	1300	SMO / JJANSON	
		6/7/2021	1210	R-002 / GLAFORCE	
		6/8/2021	1155	In Lab / AFELSER	
		6/8/2021	1523	R-002 / AFELSER	
		6/17/2021	1444	In Lab / AFELSER	
		6/18/2021	0710	R-002 / AFELSER	
R2105466-010.01					
	Organic Acids				
		6/4/2021	1300	SMO / JJANSON	
		6/7/2021	1210	R-002 / GLAFORCE	
		6/8/2021	1155	In Lab / AFELSER	
		6/8/2021	1523	R-002 / AFELSER	
		6/17/2021	1444	In Lab / AFELSER	
		6/18/2021	0710	R-002 / AFELSER	

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Miscellaneous Forms

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

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REPORT QUALIFIERS AND DEFINITIONS

U Analyte was analyzed for but not detected. The sample quantitation limit has been corrected for dilution and for percent moisture, unless otherwise noted in the case narrative.

J Estimated value due to either being a Tentatively Identified Compound (TIC) or that the concentration is between the MRL and the MDL. Concentrations are not verified within the linear range of the calibration. For DoD: concentration >40% difference between two GC columns (pesticides/Arclors).

B Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.

E Inorganics- Concentration is estimated due to the serial dilution was outside control limits.

E Organics- Concentration has exceeded the calibration range for that specific analysis.

D Concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range or that a surrogate has been diluted out of the sample and cannot be assessed.

* Indicates that a quality control parameter has exceeded laboratory limits. Under the ñNotesò column of the Form I, this qualifier denotes analysis was performed out of Holding Time.

H Analysis was performed out of hold time for tests that have an ñimmediateò hold time criteria.

Spike was diluted out.

\+ Correlation coefficient for MSA is <0.995.

N Inorganics- Matrix spike recovery was outside laboratory limits.

N Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.

S Concentration has been determined using Method of Standard Additions (MSA).

W Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.

P Concentration >40% difference between the two GC columns.

C Confirmed by GC/MS

Q DoD reports: indicates a pesticide/Aroclor is not confirmed (Ó100% Difference between two GC columns).

X See Case Narrative for discussion.

MRL Method Reporting Limit. Also known as:
LOQ Limit of Quantitation (LOQ)
The lowest concentration at which the method analyte may be reliably quantified under the method conditions.

MDL Method Detection Limit. A statistical value derived from a study designed to provide the lowest concentration that will be detected 99% of the time. Values between the MDL and MRL are estimated (see J qualifier).

LOD Limit of Detection. A value at or above the MDL which has been verified to be detectable.

ND Non-Detect. Analyte was not detected at the concentration listed. Same as U qualifier.

Rochester Lab ID # for State Certifications[1]

Connecticut ID # PH0556	Maine ID #NY0032	Pennsylvania ID# 68-786
Delaware Approved	New Hampshire ID # 2941	Rhode Island ID # 158
DoD ELAP #65817	New York ID # 10145	Virginia #460167
Florida ID # E87674	North Carolina #676	

[1] Analyses were performed according to our laboratoryôs NELAP-approved quality assurance program and any applicable state or agency requirements. The test results meet requirements of the current NELAP/TNI standards or state or agency requirements, where applicable, except as noted in the case narrative. Since not all analyte/method/matrix combinations are offered for state/NELAC accreditation, this report may contain results which are not accredited. For a specific list of accredited analytes, contact the laboratory or go to https://www.alsglobal.com/locations/americas/north-america/usa/new-york/rochester-environmental

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Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

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Analyst Summary report

Client: ALS Environmental - US
Project: LHAAP / Site 58/NW01312.0150
Service Request: R2105466

Sample Name: 35AWW09_060221
Lab Code: R2105466-001
Sample Matrix: Water
Date Collected: 06/2/21
Date Received: 06/3/21

Analysis Method	Extracted/Digested By	Analyzed By
Organic Acids		AFELSER

Sample Name: 35AWW09-060221-a
Lab Code: R2105466-002
Sample Matrix: Water
Date Collected: 06/2/21
Date Received: 06/3/21

Analysis Method	Extracted/Digested By	Analyzed By
Organic Acids		AFELSER

Sample Name: 03WW01_060221
Lab Code: R2105466-003
Sample Matrix: Water
Date Collected: 06/2/21
Date Received: 06/3/21

Analysis Method	Extracted/Digested By	Analyzed By
Organic Acids		AFELSER

Sample Name: 35AWW08_060221
Lab Code: R2105466-004
Sample Matrix: Water
Date Collected: 06/2/21
Date Received: 06/3/21

Analysis Method	Extracted/Digested By	Analyzed By
Organic Acids		AFELSER

Sample Name: 35AWW11_060221
Lab Code: R2105466-005
Sample Matrix: Water
Date Collected: 06/2/21
Date Received: 06/3/21

Analysis Method	Extracted/Digested By	Analyzed By
Organic Acids		AFELSER

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Analyst Summary report

Client: ALS Environmental - US
Project: LHAAP / Site 58/NW01312.0150
Service Request: R2105466

Sample Name: LHSMW07_060221
Lab Code: R2105466-006
Sample Matrix: Water
Date Collected: 06/2/21
Date Received: 06/3/21

Analysis Method	Extracted/Digested By	Analyzed By
Organic Acids		AFELSER

Sample Name: 35AWW19_060321
Lab Code: R2105466-007
Sample Matrix: Water
Date Collected: 06/3/21
Date Received: 06/4/21

Analysis Method	Extracted/Digested By	Analyzed By
Organic Acids		AFELSER

Sample Name: 35AWW23_060321
Lab Code: R2105466-008
Sample Matrix: Water
Date Collected: 06/3/21
Date Received: 06/4/21

Analysis Method	Extracted/Digested By	Analyzed By
Organic Acids		AFELSER

Sample Name: 35AWW20_060321
Lab Code: R2105466-009
Sample Matrix: Water
Date Collected: 06/3/21
Date Received: 06/4/21

Analysis Method	Extracted/Digested By	Analyzed By
Organic Acids		AFELSER

Sample Name: 35AWW06_060321
Lab Code: R2105466-010
Sample Matrix: Water
Date Collected: 06/3/21
Date Received: 06/4/21

Analysis Method	Extracted/Digested By	Analyzed By
Organic Acids		AFELSER

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INORGANIC PREPARATION METHODS

The preparation methods associated with this report are found in these tables unless discussed in the case narrative.

Water/Liquid Matrix

Analytical Method	Preparation Method
200.7	200.2
200.8	200.2
6010C	3005A/3010A
6020A	ILM05.3
9034 Sulfide Acid Soluble	9030B
SM 4500-CN-E Residual Cyanide	SM 4500-CN-G
SM 4500-CN-E WAD Cyanide	SM 4500-CN-I

Solid/Soil/Non-Aqueous Matrix

Analytical Method	Preparation Method
6010C	3050B
6020A	3050B
6010C TCLP (1311) extract	3005A/3010A
6010 SPLP (1312) extract	3005A/3010A
7199	3060A
300.0 Anions/ 350.1/ 353.2/ SM 2320B/ SM 5210B/ 9056A Anions	DI extraction
For analytical methods not listed, the preparation method is the same as the analytical method reference.	

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Sample Results

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

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Semivolatile Organic Compounds by GC

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

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Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R2105466
Project:	LHAAP / Site 58/NW01312.0150	**Date Collected:**	06/02/21 07:10
Sample Matrix:	Water	**Date Received:**	06/03/21 09:30
Sample Name:	35AWW09_060221	**Units:**	mg/L
Lab Code:	R2105466-001	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND U	0.20	0.10	0.052	1	06/10/21 14:15	
Acetic Acid	ND U	4.0	2.0	0.56	1	06/10/21 14:15	
Butanoic Acid (Butyric Acid)	ND U	2.0	1.0	0.77	1	06/10/21 14:15	
Lactic Acid	ND U	2.0	1.0	0.41	1	06/10/21 14:15	
Propionic Acid	ND U	4.0	1.5	1.1	1	06/10/21 14:15	

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Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R2105466
Project:	LHAAP / Site 58/NW01312.0150	**Date Collected:**	06/02/21 07:10
Sample Matrix:	Water	**Date Received:**	06/03/21 09:30
Sample Name:	35AWW09-060221-a	**Units:**	mg/L
Lab Code:	R2105466-002	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND U	0.20	0.10	0.052	1	06/18/21 00:51	
Acetic Acid	**0.63 J**	4.0	2.0	0.56	1	06/18/21 00:51	
Butanoic Acid (Butyric Acid)	ND U	2.0	1.0	0.77	1	06/18/21 00:51	
Lactic Acid	ND U	2.0	1.0	0.41	1	06/18/21 00:51	
Propionic Acid	ND U	4.0	1.5	1.1	1	06/18/21 00:51	

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Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R2105466
Project:	LHAAP / Site 58/NW01312.0150	**Date Collected:**	06/02/21 08:05
Sample Matrix:	Water	**Date Received:**	06/03/21 09:30
Sample Name:	03WW01_060221	**Units:**	mg/L
Lab Code:	R2105466-003	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND U	0.20	0.10	0.052	1	06/18/21 01:54	
Acetic Acid	**3.3 J**	4.0	2.0	0.56	1	06/18/21 01:54	
Butanoic Acid (Butyric Acid)	ND U	2.0	1.0	0.77	1	06/18/21 01:54	
Lactic Acid	ND U	2.0	1.0	0.41	1	06/18/21 01:54	
Propionic Acid	ND U	4.0	1.5	1.1	1	06/18/21 01:54	

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Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R2105466
Project:	LHAAP / Site 58/NW01312.0150	**Date Collected:**	06/02/21 08:55
Sample Matrix:	Water	**Date Received:**	06/03/21 09:30
Sample Name:	35AWW08_060221	**Units:**	mg/L
Lab Code:	R2105466-004	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result		LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND	U	0.20	0.10	0.052	1	06/18/21 02:56	
Acetic Acid	**1.2**	**J**	4.0	2.0	0.56	1	06/18/21 02:56	
Butanoic Acid (Butyric Acid)	ND	U	2.0	1.0	0.77	1	06/18/21 02:56	
Lactic Acid	**2.1**		2.0	1.0	0.41	1	06/18/21 02:56	
Propionic Acid	ND	U	4.0	1.5	1.1	1	06/18/21 02:56	

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Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R2105466
Project:	LHAAP / Site 58/NW01312.0150	**Date Collected:**	06/02/21 09:45
Sample Matrix:	Water	**Date Received:**	06/03/21 09:30
Sample Name:	35AWW11_060221	**Units:**	mg/L
Lab Code:	R2105466-005	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND U	0.20	0.10	0.052	1	06/11/21 00:32	
Acetic Acid	**0.87 J**	4.0	2.0	0.56	1	06/11/21 00:32	
Butanoic Acid (Butyric Acid)	ND U	2.0	1.0	0.77	1	06/11/21 00:32	
Lactic Acid	ND U	2.0	1.0	0.41	1	06/11/21 00:32	
Propionic Acid	ND U	4.0	1.5	1.1	1	06/11/21 00:32	

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ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R2105466
Project:	LHAAP / Site 58/NW01312.0150	**Date Collected:**	06/02/21 10:35
Sample Matrix:	Water	**Date Received:**	06/03/21 09:30
Sample Name:	LHSMW07_060221	**Units:**	mg/L
Lab Code:	R2105466-006	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result		LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND	U	0.20	0.10	0.052	1	06/11/21 01:33	
Acetic Acid	**0.65**	**J**	4.0	2.0	0.56	1	06/11/21 01:33	
Butanoic Acid (Butyric Acid)	ND	U	2.0	1.0	0.77	1	06/11/21 01:33	
Lactic Acid	ND	U	2.0	1.0	0.41	1	06/11/21 01:33	
Propionic Acid	ND	U	4.0	1.5	1.1	1	06/11/21 01:33	

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dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R2105466
Project:	LHAAP / Site 58/NW01312.0150	**Date Collected:**	06/03/21 07:20
Sample Matrix:	Water	**Date Received:**	06/04/21 09:35
Sample Name:	35AWW19_060321	**Units:**	mg/L
Lab Code:	R2105466-007	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result		LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND	U	0.20	0.10	0.052	1	06/11/21 02:35	
Acetic Acid	**0.62**	**J**	4.0	2.0	0.56	1	06/11/21 02:35	
Butanoic Acid (Butyric Acid)	ND	U	2.0	1.0	0.77	1	06/11/21 02:35	
Lactic Acid	ND	U	2.0	1.0	0.41	1	06/11/21 02:35	
Propionic Acid	ND	U	4.0	1.5	1.1	1	06/11/21 02:35	

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dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R2105466
Project:	LHAAP / Site 58/NW01312.0150	**Date Collected:**	06/03/21 08:10
Sample Matrix:	Water	**Date Received:**	06/04/21 09:35
Sample Name:	35AWW23_060321	**Units:**	mg/L
Lab Code:	R2105466-008	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result		LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND	U	0.20	0.10	0.052	1	06/18/21 06:00	
Acetic Acid	**9.1**		4.0	2.0	0.56	1	06/18/21 06:00	
Butanoic Acid (Butyric Acid)	ND	U	2.0	1.0	0.77	1	06/18/21 06:00	
Lactic Acid	ND	U	2.0	1.0	0.41	1	06/18/21 06:00	
Propionic Acid	ND	U	4.0	1.5	1.1	1	06/18/21 06:00	

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dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R2105466
Project:	LHAAP / Site 58/NW01312.0150	**Date Collected:**	06/03/21 09:00
Sample Matrix:	Water	**Date Received:**	06/04/21 09:35
Sample Name:	35AWW20_060321	**Units:**	mg/L
Lab Code:	R2105466-009	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result		LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND	U	0.20	0.10	0.052	1	06/18/21 07:01	
Acetic Acid	**0.61**	**J**	4.0	2.0	0.56	1	06/18/21 07:01	
Butanoic Acid (Butyric Acid)	ND	U	2.0	1.0	0.77	1	06/18/21 07:01	
Lactic Acid	ND	U	2.0	1.0	0.41	1	06/18/21 07:01	
Propionic Acid	ND	U	4.0	1.5	1.1	1	06/18/21 07:01	

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Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R2105466
Project:	LHAAP / Site 58/NW01312.0150	**Date Collected:**	06/03/21 10:40
Sample Matrix:	Water	**Date Received:**	06/04/21 09:35
Sample Name:	35AWW06_060321	**Units:**	mg/L
Lab Code:	R2105466-010	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND U	0.20	0.10	0.052	1	06/18/21 08:03	
Acetic Acid	**1.3 J**	4.0	2.0	0.56	1	06/18/21 08:03	
Butanoic Acid (Butyric Acid)	ND U	2.0	1.0	0.77	1	06/18/21 08:03	
Lactic Acid	ND U	2.0	1.0	0.41	1	06/18/21 08:03	
Propionic Acid	ND U	4.0	1.5	1.1	1	06/18/21 08:03	

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QC Summary Forms

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

Semivolatile Organic Compounds by GC

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

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dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	R2105466
Project:	LHAAP / Site 58/NW01312.0150	**Date Collected:**	06/02/21
Sample Matrix:	Water	**Date Received:**	06/03/21
		Date Analyzed:	06/10/21

Duplicate Matrix Spike Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Sample Name:	35AWW09_060221	**Units:**	mg/L
Lab Code:	R2105466-001	**Basis:**	NA
Analysis Method:	Organic Acids		

		Matrix Spike RQ2106667-06			Duplicate Matrix Spike RQ2106667-07					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Pyruvic Acid	ND U	22.2	20.0	111	22.1	20.0	110	73-122	<1	30
Acetic Acid	ND U	23.1	20.0	115	23.1	20.0	116	80-130	<1	30
Butanoic Acid (Butyric Acid)	ND U	20.8	20.0	104	20.5	20.0	103	86-128	1	30
Lactic Acid	ND U	22.8	20.0	114	22.7	20.0	113	81-114	<1	30
Propionic Acid	ND U	23.0	20.0	115	19.8	20.0	99	63-153	15	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

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QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	R2105466
Project:	LHAAP / Site 58/NW01312.0150	**Date Collected:**	06/03/21
Sample Matrix:	Water	**Date Received:**	06/04/21
		Date Analyzed:	06/18/21

Duplicate Matrix Spike Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Sample Name:	35AWW06_060321	**Units:**	mg/L
Lab Code:	R2105466-010	**Basis:**	NA
Analysis Method:	Organic Acids		

		Matrix Spike RQ2107066-07			Duplicate Matrix Spike RQ2107066-08					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Pyruvic Acid	ND U	21.3	20.0	106	21.7	20.0	108	73-122	2	30
Acetic Acid	1.3 J	21.3	20.0	100	21.7	20.0	102	80-130	2	30
Butanoic Acid (Butyric Acid)	ND U	20.8	20.0	104	20.9	20.0	104	86-128	<1	30
Lactic Acid	ND U	19.5	20.0	98	19.9	20.0	100	81-114	2	30
Propionic Acid	ND U	19.7	20.0	99	21.3	20.0	106	63-153	8	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

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Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R2105466
Project:	LHAAP / Site 58/NW01312.0150	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	mg/L
Lab Code:	RQ2106667-02	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND U	0.20	0.10	0.052	1	06/10/21 09:09	
Acetic Acid	ND U	4.0	2.0	0.56	1	06/10/21 09:09	
Butanoic Acid (Butyric Acid)	ND U	2.0	1.0	0.77	1	06/10/21 09:09	
Lactic Acid	ND U	2.0	1.0	0.41	1	06/10/21 09:09	
Propionic Acid	ND U	4.0	1.5	1.1	1	06/10/21 09:09	

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Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R2105466
Project:	LHAAP / Site 58/NW01312.0150	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	mg/L
Lab Code:	RQ2107066-02	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND U	0.20	0.10	0.052	1	06/17/21 19:45	
Acetic Acid	ND U	4.0	2.0	0.56	1	06/17/21 19:45	
Butanoic Acid (Butyric Acid)	ND U	2.0	1.0	0.77	1	06/17/21 19:45	
Lactic Acid	ND U	2.0	1.0	0.41	1	06/17/21 19:45	
Propionic Acid	ND U	4.0	1.5	1.1	1	06/17/21 19:45	

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QA/QC Report

Client: ALS Environmental - US
Project: LHAAP / Site 58/NW01312.0150
Sample Matrix: Water

Service Request: R2105466
Date Analyzed: 06/10/21

Duplicate Lab Control Sample Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Units:mg/L
Basis:NA

		Lab Control Sample			Duplicate Lab Control Sample					
		RQ2106667-03			RQ2106667-04					
Analyte Name	**Analytical Method**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Pyruvic Acid	Organic Acids	21.5	20.0	107	21.0	20.0	105	73-122	2	30
Acetic Acid	Organic Acids	22.2	20.0	111	21.6	20.0	108	80-130	3	30
Butanoic Acid (Butyric Acid)	Organic Acids	20.6	20.0	103	20.7	20.0	104	86-128	<1	30
Lactic Acid	Organic Acids	22.5	20.0	112	22.3	20.0	111	81-114	<1	30
Propionic Acid	Organic Acids	20.1	20.0	101	19.6	20.0	98	63-153	2	30

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QA/QC Report

Client: ALS Environmental - US
Project: LHAAP / Site 58/NW01312.0150
Sample Matrix: Water

Service Request: R2105466
Date Analyzed: 06/17/21

Duplicate Lab Control Sample Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Units:mg/L
Basis:NA

		Lab Control Sample			Duplicate Lab Control Sample					
		RQ2107066-03			RQ2107066-04					
Analyte Name	**Analytical Method**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Pyruvic Acid	Organic Acids	20.3	20.0	102	20.6	20.0	103	73-122	1	30
Acetic Acid	Organic Acids	21.5	20.0	108	21.8	20.0	109	80-130	1	30
Butanoic Acid (Butyric Acid)	Organic Acids	19.4	20.0	97	20.3	20.0	102	86-128	5	30
Lactic Acid	Organic Acids	21.4	20.0	107	21.6	20.0	108	81-114	1	30
Propionic Acid	Organic Acids	19.2	20.0	96	20.2	20.0	101	63-153	5	30

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microbialinsights
10515 Research Drive
Knoxville, TN 37932
Phone: (865) 573-8188
Fax: (865) 573-8133

ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY

Client: RagenP Giga
ALS Laboratory Group
10450 Stancliff Rd
Suite 210
Houston, TX 77040

Phone:

Fax:

Identifier: 017SF **Date Rec:** 06/04/2021 **Report Date:** 06/10/2021

Client Project #: NW01312.0150 **Client Project Name:** LHAAP / Site 58

Purchase Order #:

Test results provided for: CENSUS

Reviewed By:

NOTICE: This report is intended only for the addressee shown above and may contain confidential or privileged information. If the recipient of this material is not the intended recipient or if you have received this in error, please notify Microbial Insights, Inc. immediately. The data and other information in this report represent only the sample(s) analyzed and are rendered upon condition that it is not to be reproduced without approval from Microbial Insights, Inc. Thank you for your cooperation.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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MICROBIAL INSIGHTS, INC.

10515 Research Dr., Knoxville, TN 37932
Tel. (865) 573-8188 Fax. (865) 573-8133

CENSUS

Client: **ALS Laboratory Group**
Project: LHAAP / Site 58

MI Project Number: **017SF**
Date Received: 06/04/2021

Sample Information

Client Sample ID:		**35AWW19_060321**	**35AWW23_060321**	**35AWW20_060321**	**35AWW06_060321**
Sample Date:		06/03/2021	06/03/2021	06/03/2021	06/03/2021
Units:		cells/mL	cells/mL	cells/mL	cells/mL
Analyst/Reviewer:		HT/CB	HT/CB	HT/CB	HT/CB
Dechlorinating Bacteria					
Dehalococcoides	*DHC*	**1.61E+01**	**3.22E+03**	**7.22E+04**	**1.50E+01**
tceA Reductase	TCE	<5.00E-01	**1.43E+02**	**5.00E-01 (J)**	<2.80E+00
BAV1 Vinyl Chloride Reductase	BVC	<5.00E-01	**3.00E-01 (J)**	**5.58E+04**	**1.50E+00 (J)**
Vinyl Chloride Reductase	VCR	<5.00E-01	**4.08E+02**	**2.10E+00**	<2.80E+00
Dehalobacter spp.	*DHBt*	**2.49E+04**	**8.20E+03**	**1.34E+04**	**4.17E+03**

Legend:
NA = Not Analyzed NS = Not Sampled J = Estimated gene copies below PQL but above LQL I = Inhibited
< = Result not detected

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Quality Assurance/Quality Control Data

Samples Received **6/4/2021**

Component	Date Prepared	Date Analyzed	Arrival Temperature	Positive Control	Extraction Blank	Negative Control
DHC	06/04/2021	06/10/2021	4 °C	103%	non-detect	non-detect
DHBt	06/04/2021	06/10/2021	4 °C	107%	non-detect	non-detect
BVC	06/04/2021	06/10/2021	4 °C	106%	non-detect	non-detect
TCE	06/04/2021	06/10/2021	4 °C	105%	non-detect	non-detect
VCR	06/04/2021	06/10/2021	4 °C	110%	non-detect	non-detect

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LABORATORY REPORT

June 30, 2021

Ragen Giga
ALS Environmental - US
10450 Stancliff Rd Suite 210
Houston, TX 77099

RE: HS21060226

Dear Ragen:

Enclosed are the results of the samples submitted to our laboratory on June 8, 2021. For your reference, these analyses have been assigned our service request number P2103109.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

ALS | Environmental

By Sue Anderson at 7:34 pm, Jun 30, 2021
For Hayden Akers
Project Manager

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2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
www.alsglobal.com

Client: ALS Environmental - US
Project: HS21060226

Service Request No: P2103109

CASE NARRATIVE

The samples were received intact under chain of custody on June 8, 2021 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the sampleS at the time of sample receipt.

Carbon Dioxide Analysis

The samples were analyzed for carbon dioxide using a gas chromatograph equipped with a thermal conductivity detector (TCD). A known amount of liquid was displaced by injecting 8.0 milliliters of helium creating a headspace in the sample vial. Each sample vial was agitated using a sonic disrupter for fifteen minutes and then allowed to equilibrate for at least four hours. A volume of the headspace was withdrawn using a gas-tight syringe and analyzed using a manual injection technique. The amount of dissolved gases (carbon dioxide) in the original sample was calculated using Henry's Law. This method was performed with guidance from RSK 175 as described in laboratory SOP VOA-DISGAS. This analyte is included on the laboratory's NELAP and DoD-ELAP scope of accreditation.

Methane, Ethene and Ethane Analysis

The samples were analyzed for methane, ethene, and ethane using a gas chromatograph equipped with a flame ionization detector (FID). A known amount of liquid was displaced by injecting 8.0 milliliters of helium creating a headspace in the sample vial. Each sample vial was agitated using a sonic disrupter for fifteen minutes and then allowed to equilibrate for at least two hours. A volume of the headspace was withdrawn using a gas-tight syringe and analyzed using a manual injection technique. The amount of dissolved gases (methane, ethene and ethane) in the original sample was calculated using Henry's Law. This method was performed with guidance from RSK 175. This method is included on the laboratory's NELAP and DoD-ELAP scope of accreditation. Any analytes flagged with an X are not included on the laboratory's NELAP or DoD-ELAP accreditation.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

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ALS Environmental – Simi Valley

CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

Agency	Web Site	Number
Alaska DEC	http://dec.alaska.gov/eh/lab.aspx	17-019
Arizona DHS	http://www.azdhs.gov/preparedness/state-laboratory/lab-licensure-certification/index.php#laboratory-licensure-home	AZ0694
Florida DOH (NELAP)	http://www.floridahealth.gov/licensing-and-regulation/environmental-laboratories/index.html	E871020
Louisiana DEQ (NELAP)	http://www.deq.louisiana.gov/page/la-lab-accreditation	05071
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/professionals/labCert.shtml	2018027
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	1776326
New Jersey DEP (NELAP)	http://www.nj.gov/dep/enforcement/oqa.html	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://www.oregon.gov/oha/ph/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	4068-008
Pennsylvania DEP	http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx	68-03307 (Registration)
PJLA (DoD ELAP)	http://www.pjlabs.com/search-accredited-labs	65818 (Testing)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/agency/qa/env_lab_accreditation.html	T104704413-19-10
Utah DOH (NELAP)	http://health.utah.gov/lab/lab_cert_env	CA016272019-10
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946

Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website.

Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.

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ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: ALS Environmental - US
Project ID: HS21060226

Service Request: P2103109

Date Received: 6/8/2021
Time Received: 09:30

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	RSK 175 - CO2	RSK 175 - Gases
35AWW19_060321	P2103109-001	Water	6/3/2021	07:20	X	X
35AWW23_060321	P2103109-002	Water	6/3/2021	08:10	X	X
35AWW20_060321	P2103109-003	Water	6/3/2021	09:00	X	X
35AWW06_060321	P2103109-004	Water	6/3/2021	10:40	X	X

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R103109

10450 Stancliff Rd, Ste 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887
www.alsglobal.com

Subcontract Chain of Custody

SAMPLING STATE: Texas **COC ID:** 16240

SUBCONTRACT TO:

ALS Environmental
2655 Park Center Drive, Suite A
Simi Valley, CA 93065

Phone: +1 805 526 7161

CUSTOMER INFORMATION:

Company:	ALS Houston
Contact:	Ragen Giga
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Email:	RagenP.Giga@ALSGlobal.com
Alternate Contact:	
Email:	

INVOICE INFORMATION:

Company:	ALS Houston
Contact:	Accounts Payable
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Reference:	HS21060226
TSR:	Sonia West

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS21060226-01**	**35AWW19_060321**	**Groundwater**	**03 Jun 2021 07:20**
	MEE plus CO2. Provide Level II and Level IV reports in separate pdf			18 Jun 2021
2.	**HS21060226-02**	**35AWW23_060321**	**Groundwater**	**03 Jun 2021 08:10**
	MEE plus CO2. Provide Level II and Level IV reports in separate pdf			18 Jun 2021
3.	**HS21060226-03**	**35AWW20_060321**	**Groundwater**	**03 Jun 2021 09:00**
	MEE plus CO2. Provide Level II and Level IV reports in separate pdf			18 Jun 2021
4.	**HS21060226-05**	**35AWW06_060321**	**Groundwater**	**03 Jun 2021 10:40**
	MEE plus CO2. Provide Level II and Level IV reports in separate pdf			18 Jun 2021

Comments: Please analyze for the analysis listed above.
Send report to the emails shown above.
2 x Neat Vials & 3 x HCL Vials per sample

QC Level: DOD IV (DoD Data Package)

P2103103

Subcontract Chain of Custody

SAMPLING STATE: **Texas**

COC ID: **16240**

Relinquished By: _____ Date/Time: 6/7/2021 1800

Received By: _____ Date/Time: 6-8-21 0930

Cooler ID(s): _____ Temperature(s): _____ 2° wet

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Environmental
Sample Acceptance Check Form

Client: ALS Environmental - US Work order: P2103109

Project: HS21060226

Sample(s) received on: 6/8/21 Date opened: 6/8/21 by: ADAVID

Note: This form is used for all samples received by ALS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

		Yes	No	N/A
1	Were **sample containers** properly marked with client sample ID?	☒	☐	☐
2	Did **sample containers** arrive in good condition?	☒	☐	☐
3	Were **chain-of-custody** papers used and filled out?	☒	☐	☐
4	Did **sample container labels** and/or tags agree with custody papers?	☒	☐	☐
5	Was **sample volume** received adequate for analysis?	☒	☐	☐
6	Are samples within specified holding times?	☒	☐	☐
7	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☒	☐	☐
	Cooler Temperature: 2° C Blank Temperature: ° C	Wet Ic		
8	Were **custody seals** on outside of cooler/Box/Container?	☒	☐	☐
	Location of seal(s)? Cooler lid. Sealing Lid?	☒	☐	☐
	Were signature and date included?	☒	☐	☐
	Were seals intact?	☒	☐	☐
9	Do containers have appropriate **preservation**, according to method/SOP or Client specified information?	☒	☐	☐
	Is there a client indication that the submitted samples are **pH** preserved?	☒	☐	☐
	Were **VOA vials** checked for presence/absence of air bubbles?	☒	☐	☐
	Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?	☐	☒	☐
10	**Tubes:** Are the tubes capped and intact?	☐	☐	☒
11	**Badges:** Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P2103109-001.01	40mL VOA NP		5		A	CB 06/25/21
P2103109-001.02	40mL VOA NP				A	
P2103109-001.04	40ml VOA HCL				A	
P2103109-001.05	40ml VOA HCL		1		A	CB 06/14/21
P2103109-001.06	40ml VOA HCL				A	
P2103109-002.01	40mL VOA NP				A	
P2103109-002.02	40mL VOA NP		6		A	CB 06/25/21
P2103109-002.04	40ml VOA HCL				A	
P2103109-002.05	40ml VOA HCL		1		A	CB 06/14/21
P2103109-002.06	40ml VOA HCL				A	
P2103109-003.01	40mL VOA NP				A	
P2103109-003.02	40mL VOA NP		6		A	CB 06/25/21
P2103109-003.04	40ml VOA HCL				A	
P2103109-003.05	40ml VOA HCL				A	
P2103109-003.06	40ml VOA HCL		1		A	CB 06/14/21

Explain any discrepancies: (include lab sample ID numbers):

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Environmental
Sample Acceptance Check Form

Client: ALS Environmental - US Work order: P2103109

Project: HS21060226

Sample(s) received on: 6/8/21 Date opened: 6/8/21 by: ADAVID

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P2103109-004.01	40mL VOA NP		7		A	CB 06/25/21
P2103109-004.02	40mL VOA NP				A	
P2103109-004.04	40ml VOA HCL				A	
P2103109-004.05	40ml VOA HCL				A	
P2103109-004.06	40ml VOA HCL		1		A	CB 06/14/21

Explain any discrepancies: (include lab sample ID numbers):

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

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ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Environmental - US**
Client Project ID: **HS21060226** ALS Project ID: P2103109

Carbon Dioxide

Test Code: RSK 175
Instrument ID: HP5890A/GC10/TCD
Analyst: Connor Barrett
Matrix: Water
Test Notes:

Date(s) Collected: 6/3/21
Date Received: 6/8/21
Date Analyzed: 6/25/21

Client Sample ID	ALS Sample ID	Injection Volume ml(s)	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
35AWW19_060321	P2103109-001	0.05	**670,000**	2,000	1,700	740	
35AWW23_060321	P2103109-002	0.10	**540,000**	1,000	860	370	
35AWW20_060321	P2103109-003	0.05	**690,000**	2,000	1,700	740	
35AWW06_060321	P2103109-004	0.10	**490,000**	1,000	860	370	
Method Control Sample	P210625-MB	0.10	860	1,000	860	370	**U**

The Method Control Sample is laboratory water carried through the entire analytical process.
U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

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ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **ALS Environmental - US**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P2103109
Client Project ID: **HS21060226** ALS Sample ID: P210625-DLCS

Test Code: RSK 175 Date Collected: NA
Instrument ID: HP5890A/GC10/TCD Date Received: NA
Analyst: Connor Barrett Date Analyzed: 6/25/21
Matrix: Water Volume(s) Analyzed: NA ml(s)
Test Notes:

CAS #	Compound	Spike Amount LCS / DLCS ug/L	Result$_1$ LCS ug/L	Result$_1$ DLCS ug/L	% Recovery LCS	% Recovery DLCS	DOD Acceptance Limits	RPD	RPD Limit	Data Qualifier
124-38-9	Carbon Dioxide	22,900	19,000	19,100	**83**	**83**	80-122	0	12	

$_1$ = The concentration shown includes a subtraction of the Method Control Sample value, even if the result is less than the MRL.

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ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Environmental - US**
Client Sample ID: **35AWW19_060321**
Client Project ID: **HS21060226**

ALS Project ID: P2103109
ALS Sample ID: P2103109-001

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Connor Barrett/Wade Henton
Matrix: Water
Test Notes:

Date Collected: 6/3/21
Date Received: 6/8/21
Date Analyzed: 6/14/21
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	**2.2**	1.3	1.0	0.51	
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

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ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Environmental - US**
Client Sample ID: **35AWW23_060321**
Client Project ID: **HS21060226**

ALS Project ID: P2103109
ALS Sample ID: P2103109-002

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Connor Barrett/Wade Henton
Matrix: Water
Test Notes:

Date Collected: 6/3/21
Date Received: 6/8/21
Date Analyzed: 6/14/21
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	**3,700**	1.3	1.0	0.51	
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

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ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Environmental - US**
Client Sample ID: **35AWW20_060321**
Client Project ID: **HS21060226**

ALS Project ID: P2103109
ALS Sample ID: P2103109-003

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Connor Barrett/Wade Henton
Matrix: Water
Test Notes:

Date Collected: 6/3/21
Date Received: 6/8/21
Date Analyzed: 6/14/21
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	**1,500**	1.3	1.0	0.51	
74-85-1	Ethene	**11**	1.0	0.55	0.24	
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

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ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Environmental - US**
Client Sample ID: **35AWW06_060321**
Client Project ID: **HS21060226**

ALS Project ID: P2103109
ALS Sample ID: P2103109-004

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Connor Barrett/Wade Henton
Matrix: Water
Test Notes:

Date Collected: 6/3/21
Date Received: 6/8/21
Date Analyzed: 6/14/21
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	**2,200**	1.3	1.0	0.51	
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

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ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Environmental - US**
Client Sample ID: **Method Control Sample** ALS Project ID: P2103109
Client Project ID: **HS21060226** ALS Sample ID: P210614-MB

Test Code: RSK 175 Date Collected: NA
Instrument ID: HP5890A/GC10/FID Date Received: NA
Analyst: Connor Barrett/Wade Henton Date Analyzed: 6/14/21
Matrix: Water Volume(s) Analyzed: 0.10 ml(s)
Test Notes:

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	1.0	1.3	1.0	0.51	**U**
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

The Method Control Sample is laboratory water carried through the entire analytical process.
U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

RIGHT SOLUTIONS | RIGHT PARTNER

QUALITY CONTROL SUMMARY REPORT
LHAAP-58 June 2021
Semi-Annual SAMPLING EVENT
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

August 2021

Prepared For:

Longhorn Army Ammunition Plant
Karnack, Texas

Under Contract To:

U.S. Army Corps of Engineers
Tulsa District
Tulsa, Oklahoma

Contract Number: W9128F-13-D-0012
Task Order Number: W912BV17F0150

Prepared By:

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1 INTRODUCTION

Bhate reviewed two data packages from ALS Environmental, Houston, Texas with the analyses for volatile fatty acids subcontracted to ALS Rochester, New York., and the analyses of dissolved gases to ALS Simi Valley, CA. The dechlorinating bacteria analysis was subcontracted to Microbial Insights in Knoxville, TN. Groundwater samples were collected June 1 - 3, 2021 from Site LHAAP-58 at the Longhorn Army Ammunition Plant (LHAAP), Karnack, Texas. Data were reviewed for conformance to the requirements of the following guidance documents: *USEPA Contract Laboratory Program* [CLP] *National Functional Guidelines for Superfund Organic Methods Data Review* (USEPA, November 2020), *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review* (USEPA, January 2017) and the *Final Basewide Uniform Federal Policy* [UFP] – *Quality Assurance Project Plan* [QAPP] *Longhorn Army Ammunition Plant* which is in Appendix C of the *Final Installation-Wide Work Plan for Longhorn Army Ammunition Plant Karnack, Texas* (Bhate, May 2018).

1.1 Intended Use of Data

The objective of sampling at LHAAP-58 in the second quarter of 2020 was to establish the semi-annual event.

Analyses performed include:

- RSK175 – Dissolved Gases
- SM5310 C/E415.1 – Total Organic Carbon
- SW8260C – Volatiles
- SW9056A – Anions
- HPLC-METACIDS – Volatile Fatty Acids (VFAs)
- CENSUS – Dechlorinating Bacteria (DHC/DHB)
- SW6020A – Arsenic

Table 1 lists the sample identification numbers (IDs) and their associated laboratory package.
Table 2 lists qualified results with the qualification flag and reason code.

The following narrative is a brief synopsis of data that required qualification due to quality control discrepancies.

1.2 Preservation and Holding Time

Sample identification data were evaluated for agreement with the chain-of-custody (COC). All samples were received in appropriate containers, within the proper temperature range, in good condition, and within the required hold time.

1.3 Calibrations

All analytes reported must be present in the initial and continuing calibration. The calibrations must meet the acceptance criteria specified in Worksheet 24 (Analytical Instrument Calibration) of the QAPP. All results reported must be within the calibration range. Samples were diluted, if necessary, to bring analyte responses within the calibration range

1.3.1 Continuing Calibration Verifications

The continuing calibration verification (CCV) must meet the following criteria otherwise the compound is qualified J or UJ: The CCV criteria are 20 percent difference (%D) for VOCs and 50% for closing CCVs. Metals and general chemistry - 10%D; VFAs, Dissolved Gases and TOC - 15%D.

Hexachlorobutadiene was above recovery limits for all samples in package HS21060181 with the exception of 35AWW16_060121 and 35AWW08_060221. The associated samples were flagged estimated "UJ".

The ending CCV for trichloroethene ran out of tune time for samples 35AWW09_060221 and 35AAWW09_060221-a. Trichloroethene was flagged estimated "J".

1.4 Blanks

If the analyte result for an associated sample was less than 5X (10X for common laboratory contaminants) the analyte concentration in the blank, that result was qualified "UB" and considered an artifact of blank contamination. Where the sample result for the affected analyte was non-detect or greater than 5X the amount in the blank, no qualifier was applied.

No compounds warranted blank qualification.

1.5 Surrogates

Surrogates were evaluated using limits defined by each method in the project-specific QAPP Worksheet 28.

No surrogates were reported outside control limits.

1.6 Laboratory Control Sample/Laboratory Control Sample Duplicate

Laboratory control sample/laboratory control sample duplicate (LCS/LCSD) recoveries were evaluated using limits defined in the project-specific QAPP Worksheet 15.

No LCS recoveries warranted qualification.

1.7 Matrix Spike/Matrix Spike Duplicate Sample

Matrix spike/matrix spike duplicate (MS/MSD) recoveries were evaluated using limits defined in Worksheet 15 of the project-specific QAPP. When sample results were greater than 4x the spike amount, control limits were not applicable and require no qualification. Furthermore, if a MS/MSD analyses was performed on a batched (unrelated) sample no qualification was made to the sample data.

1.7.1 SW8260

The MS and/or MSD recoveries of chloroform, 1,1-dichloroethane, bromochloromethane, methylene chloride and trans-1,2-dichloroethene, in spike samples 35AWW10_060121, were below control limits. Additionally, the MS and MSD recoveries for chloroform were below control limits in spiked sample 35AWW16. Due to matrix effect, these non-detected compounds were flagged "UJ".

1.8 Internal Standards

If the %R for an internal standard in a sample is not within the limit, the associated sample is qualified for those analytes associated with the internal standard(s) outside of the limit.

Internal standards were within acceptance criteria for the associated compounds.

1.9 Precision

Precision is the measure of variability of individual sample measurements.

1.9.1 Field Precision

Evaluation of field duplicates for precision was done using the RPD. The relative percent difference (RPD) is defined as the difference between two duplicate samples divided by the mean and expressed as a percent. Field duplicate RPD limits were set at <30% for groundwater matrices.

The RPD for methane was above control limits for parent sample 35AWW09_060221 and duplicate. Methane was flagged estimated "J" in both samples.

1.9.2 Lab Precision

The laboratory RPDs were within control limits.

2.0 DATA USABILITY SUMMARY

The data are usable for the intended purposes of the project (**Table 3**). The data quality objectives have been met for the project.

Table 1: Field Sample Identification and Laboratory Packages

Client Sample ID	Lab Package/ID	SM5310 C E415.1	SW8260C	HPLC-METACIDS	SW9056A	RSK-175	CENSUS	Arsenic 6020A
		TOC	VOCS	VFAs	Anions	Gases	Bac	Ars
35ASW03_060321	HS21060226		X					
03WW01_060221	HS21060181	X	X	X	X	X	X	X
35AWW01_060121	HS21060181		X					X
35AWW01_060121_a	HS21060181		X					X
35AWW05_060221	HS21060181		X					
35AWW06_060321	HS21060226	X	X	X	X	X	X	
35AWW08_060221	HS21060181	X	X	X	X	X	X	X
35AWW09_060221	HS21060181	X	X	X	X	X		X
35AWW09_060221_a	HS21060181	X	X	X	X	X		X
35AWW10_060121	HS21060181		X					
35AWW11_060221	HS21060181	X	X	X	X	X	X	
35AWW12_060221	HS21060181		X					
35AWW13_060121	HS21060181		X					
35aww14_060121	Hs21060181		X					
35AWW15_060121	HS21060181		X					
35AWW16_060121	HS21060181		X					
35AWW17_060321	HS21060226		X					
35AWW18_060121	HS21060181		X					
35AWW19_060321	HS21060226	X	X	X	X	X	X	
35AWW20_060321	HS21060226	X	X	X	X	X	X	X
34AWW21_060121	HS21060181			X				
35AWW22_060221	HS21060181			X				
35AWW23_060321	HS21060226	X	X	X	X	X	X	
35AWW24_060121	HS21060181			X				
35AWW24_060121_a	HS21060181			X				
LHSMW06_060321	HS21060226		X					X
LHSMW07_060221	HS21060181	X	X	X	X	X	X	

Table 2: Qualified Analytical Data

Client Sample ID Laboratory	Laboratory Package	Analyte Name	Data Validation Qualifier	Reason for Qualification
03WW01_060221	HS21060181	Hexachlorobutadiene	< 1.0 UJ	CCV
35AWW01_060121	HS21060181	Hexachlorobutadiene	< 1.0 UJ	CCV
35AWW01_060121_a	HS21060181	Hexachlorobutadiene	< 1.0 UJ	CCV
35AWW05_060221	HS21060181	Hexachlorobutadiene	< 1.0 UJ	CCV
35AWW09_060221	HS21060181	Methane Trichloroethene Hexachlorobutadiene	1.6 J 130 J < 1.0 UJ	FD RPD CCV CCV
35AWW09_060221_a	HS21060181	Methane Trichloroethene Hexachlorobutadiene	2.9 J 130 J < 1.0 UJ	FD RPD CCV CCV
35AWW10_060121	HS21060181	Hexachlorobutadiene 1,1-Dichloroethane Bromochloromethane Methylene Chloride Chloroform Trans-1,2-dichloroethene	< 1.0 UJ < 0.5 UJ < 0.5 UJ < 2.0 UJ < 1.0 UJ < 0.5 UJ	CCV MSD < MSD < MSD < MS/MSD < MSD <
35AWW11_060221	HS21060181	Hexachlorobutadiene	< 1.0 UJ	CCV
35AWW12_060221	HS21060181	Hexachlorobutadiene	< 1.0 UJ	CCV
35AWW13_060121	HS21060181	Hexachlorobutadiene	< 1.0 UJ	CCV
35AWW14_060121	HS21060181	Hexachlorobutadiene	< 1.0 UJ	CCV
35AWW15_060121	HS21060181	Hexachlorobutadiene	< 1.0 UJ	CCV
35AWW16_060121	HS21060181	Chloroform	< 0.5 UJ	MS/MSD <
35AWW18_060121	HS21060181	Hexachlorobutadiene	< 1.0 UJ	CCV
35AWW21_060121	HS21060181	Hexachlorobutadiene	< 1.0 UJ	CCV
35AWW22_060221	HS21060181	Hexachlorobutadiene	< 1.0 UJ	CCV
35AWW24_060121	HS21060181	Hexachlorobutadiene	< 1.0 UJ	CCV
35AWW24_060121_a	HS21060181	Hexachlorobutadiene	< 1.0 UJ	CCV
LHSMW07_060221	HS21060181	Hexachlorobutadiene	< 1.0 UJ	CCV

ID – identification
UJ – The analyte was not detected; however, the result is estimated due to discrepancies in meeting certain analyte-specific quality control criteria.
J – Estimated. The result is estimated due to discrepancies in meeting certain analyte-specific quality control criteria.
MS/MSD< – Matrix spike/duplicate recoveries were below control limits, CCV – continuing calibration verification, FD RPD – field duplicate relative percent difference
HS – Houston

Table 3: Completeness by Method

Method	No. of Rejected Results	% Completeness
SM5310C	0	100
SW8260C	0	100
HPLC-METACIDS	0	100
SW9056A	0	100
RSK-175	0	100
CENSUS	0	100
SW6020A	0	100

E – U.S. Environmental Protection Agency method.
SW-846 - Test Methods for Evaluating Solid Waste, Physical/Chemical Methods
HPLC - High Performance Liquid Chromatography
SM – Standard Method

QUALITY CONTROL SUMMARY REPORT
LHAAP-58 December 2020
SEMI-ANNUAL SAMPLING EVENT
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

August 2021

Prepared For:

Longhorn Army Ammunition Plant
Karnack, Texas

Under Contract To:

U.S. Army Corps of Engineers
Tulsa District
Tulsa, Oklahoma

Contract Number: W9128F-13-D-0012
Task Order Number: W912BV17F0150

Prepared By:

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Table 2: Qualified Analytical Data
Table 3: Completeness by Method

1 INTRODUCTION

Bhate reviewed three data packages from ALS Environmental, Houston, Texas with the analyses for volatile fatty acids subcontracted to ALS Rochester, NY; total organic carbon subcontracted to ALS Kelso, WA; and the analyses of dissolved gases to ALS Simi Valley, CA. The dechlorinating bacteria analysis was subcontracted to Microbial Insights in Knoxville, TN. Groundwater samples were collected on December 1-7, 2020, from Site LHAAP-58 at the Longhorn Army Ammunition Plant (LHAAP), Karnack, Texas. Data were reviewed for conformance to the requirements of the following guidance documents: [United States Environmental Protection Agency] *USEPA Contract Laboratory Program* [CLP] *National Functional Guidelines for Superfund Organic Methods Data Review* (USEPA, January 2017); *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review* (USEPA, January 2017); and the *Final Basewide Uniform Federal Policy (UFP) – Quality Assurance Project Plan (QAPP) Longhorn Army Ammunition Plant* (Bhate, May 2018).

1.2 Intended Use of Data

The objective of sampling at LHAAP-58 in December 2020 was to complete a semi-annual sampling event.

Analyses performed include:

- RSK-175 – Dissolved Gases
- SM5310C – Total Organic Carbon
- SW8260C – Volatile Organic Compounds (VOCs)
- SW9056A – Anions (chloride, nitrate, and sulfate)
- High Performance Liquid Chromatography (HPLC)-METACIDS – Volatile Fatty Acids (VFAs)
- CENSUS – Dechlorinating Bacteria (dehalococcoides [DHC]/dehalobacter [DHB])
- SW6020A – Arsenic

Table 1 lists the sample (ID) identification numbers and their associated laboratory package. **Table 2** lists qualified results with the qualification flag and reason code.

The following narrative is a brief synopsis of data that required qualification due to quality control discrepancies.

1.2 Preservation and Holding Times

Sample identification data were evaluated for agreement with the chain-of-custody (COC). All samples were received in appropriate containers, within the proper temperature range, in good condition, and within the required hold time.

1.3 Calibrations

All analytes reported must be present in the initial and continuing calibration. The calibrations must meet the acceptance criteria specified in Worksheet 24 (Analytical Instrument Calibration) of the QAPP. All results reported must be within the calibration range. Samples were diluted, if necessary, to bring analyte responses within the calibration range.

1.3.1 Continuing Calibration Verifications

The calibrations must meet the following criteria otherwise the compound is qualified J or UJ: The continuing calibration verification (CCV) criteria are 20 percent difference (%D) for VOCs and 50% for closing CCVs. Metals and general chemistry - 10%D; VFAs, dissolved gases, and TOC - 15%D.

The CCV recovery, of all compounds, was within control limits.

1.4 Blanks

If the analyte result for an associated sample was less than 5x (10x for common laboratory contaminants) the analyte concentration in the blank, that result was qualified "UB" and considered an artifact of blank contamination. Where the sample result for the affected analyte was non-detect or greater than 5x (10x) the amount in the blank, no qualifier was applied.

No data required qualification.

1.5 Surrogates

Surrogates were evaluated using limits defined by each method in the project-specific QAPP Worksheet 28.

No surrogates were reported outside control limits.

1.6 Laboratory Control Sample/Laboratory Control Sample Duplicate

The Laboratory control sample/laboratory control sample duplicate (LCSD) recovery of carbon dioxide was below control limits for samples 35AWW19_120320, 35AWW20_120320, 35AWW23_120320 and LHSMW07_120320. This compound was considered estimated and flagged "J".

1.7 Matrix Spike/Matrix Spike Duplicate Sample

Matrix spike/matrix spike duplicate (MS/MSD) recoveries were evaluated using limits defined in Worksheet 15 of the project-specific QAPP. When sample results were greater than 4x the spike amount, control limits were not applicable and require no qualification. Furthermore, if a MS/MSD analyses was performed on a batched (unrelated) sample no qualification was made to the sample data.

The MS recovery of Total Organic Carbon (TOC) was below control limits in the spiked samples 35AWW06_120120 and 35AWW20_120320 and flagged estimated "J". The MS and MSD recoveries of pyruvic acid in spiked sample 35AWW06_120120 were below control limits and flagged "UJ".

1.8 Internal Standards

If the percent recovery (%R) for an internal standard in a sample is not within the limit, the associated sample is qualified for those analytes associated with the internal standard(s) outside of the limit.

Internal standards were within acceptance criteria for the associated compounds.

1.9 Precision

Precision is the measure of variability of individual sample measurements.

1.9.1 Field Precision

Evaluation of field duplicates for precision was done using the relative percent difference (RPD). The RPD is defined as the difference between two duplicate samples divided by the mean and expressed as a percent. Field duplicate RPD limits were set at <30% for groundwater.

The RPD between sample 35AWW11_120120 and its duplicate was above control limits for sulfate and methane. These compounds were considered estimated and flagged "J" in both sample and duplicate.

1.9.2 Lab Precision

The laboratory RPDs were within control limits.

2.0 DATA USABILITY SUMMARY

The data are usable for the intended purposes of the project (**Table 3**). The data quality objectives have been met for the project.

Table 1: Field Sample Identification and Laboratory Packages

Client Sample ID	Lab Package/ID	SM5310C	SW8260C	HPLC-METACIDS	SW9056A	RSK-175	CENSUS	Arsenic 6020A
03WW01_120120	HS20120090	X	X	X	X	X	X	X
35AWW01_120720	HS20120479		X					X
35AWW05 _120320	HS20120247		X					
35AWW06 _120120	HS20120090	X	X	X	X	X	X	
35AWW08 _120120	HS20120090	X	X	X	X	X	X	X
35AWW09 _120720	HS20120479		X					
35AWW10 _120720	HS20120479		X					
35AWW10 _120720_a	HS20120479		X					
35AWW11_120120	HS20120090	X	X	X	X	X	X	
35AWW11_120120-a	HS20120090	X	X	X	X	X	X	
35AWW12_120720	HS20120479		X					
35AWW13_120720	HS20120479		X					
35AWW14_120720	HS20120479		X					
35AWW15_120120	HS20120090		X					
35AWW16 _120120	HS20120090		X					
35AWW17 _120120	HS20120090		X					
35AWW18_120120	HS20120090		X					
35AWW18_120120_a	HS20120090		X					
35AWW19_120320	HS20120247	X	X	X	X	X	X	
35AWW20_120320	HS20120247	X	X	X	X	X	X	
35AWW21_120720	HS20120479		X					
35AWW22_120720	HS20120479		X					
35AWW23_120320	HS20120247	X	X	X	X	X	X	
35AWW24_120320	HS20120247		X					
LHSMW06_120320	HS20120247		X					X
LHSMW07_120320	HS20120247	X	X	X	X	X	X	

Table 2: Qualified Analytical Data

Client Sample ID Laboratory	Laboratory Package	Analyte Name	Result and Qualifier	Reason for Qualification
35AWW06 _120120	HS20120090	TOC Pyruvic Acid	8.67 J 0.10 UJ	MS < MS/MSD <
35AWW11_120120	HS20120090	Methane Sulfate	1,800 J 415 J	FD RPD
35AWW11_120120-a	HS20120090	Methane Sulfate	4,400 J 295 J	FD RPD
35AWW19_120320	HS20120247	Carbon Dioxide	440,000 J	LCSD <
35AWW20_120320	HS20120247	Carbon Dioxide TOC	370,000 J 12 J	LCSD < MS <
35AWW23_120320	HS20120247	Carbon Dioxide	540,000 J	LCSD <
LHSMW07_120320	HS20120247	Carbon Dioxide	260,000 J	LCSD <

Notes
J – Estimated: The analyte was positively identified, the quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.
UJ – The analyte was not detected; however, the result is estimated due to discrepancies in meeting certain analyte-specific quality control criteria.
FD RPD – the relative percent difference between sample and field duplicate was outside control limits
LCSD < – laboratory control sample duplicate recoveries were below control limits
MS/MSD <– matrix spike/duplicate recoveries below control limits

Table 3: Completeness by Method

Method	No. of Rejected Results	% Completeness
SM5310C	0	100
SW8260C	0	100
HPLC-METACIDS	0	100
SW9056A	0	100
RSK-175	0	100
CENSUS	0	100
SW6020A	0	100

APPENDIX G
MANN-KENDALL TREND TEST RESULTS

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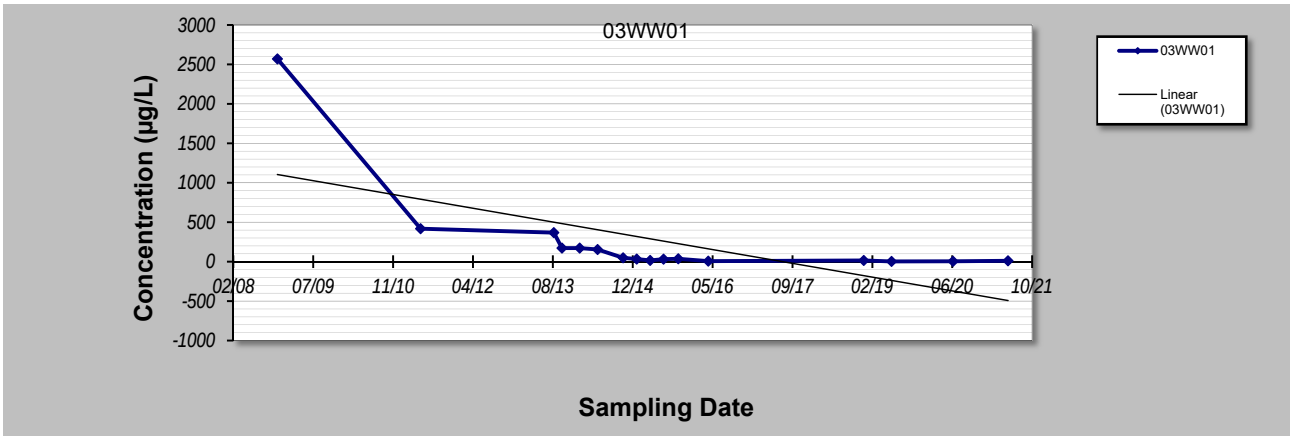
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	8/3/2021	Job ID:	NWO1312.0150
Facility Name:	LHAAP-58	Constituent:	Tetrachloroethene
Conducted By:	Zachary Beck	Concentration Units:	µg/L
Sampling Point ID:	03WW01		

Sampling Event	Sampling Date	TETRACHLOROETHENE CONCENTRATION (µg/L)
1	24-Nov-08	2570
2	9-May-11	418
3	20-Aug-13	368
4	10-Oct-13	172
5	29-Jan-14	172
6	21-May-14	154
7	28-Oct-14	48.6
8	21-Jan-15	32.8
9	15-Apr-15	15.9
10	8-Jul-15	31.4
11	8-Oct-15	36.4
12	13-Apr-16	6.49
13	12-Dec-18	15
14	4-Jun-19	3.2
15	23-Jun-20	4.5
16	2-Jun-21	11
17		
18		
19		
20		
Coefficient of Variation:		2.49
Mann-Kendall Statistic (S):		-101
Confidence Factor:		>99.9%
Concentration Trend:		Decreasing



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water* , 41(3):355-367, 2003.
4. Any ND values <50 have been excluded.

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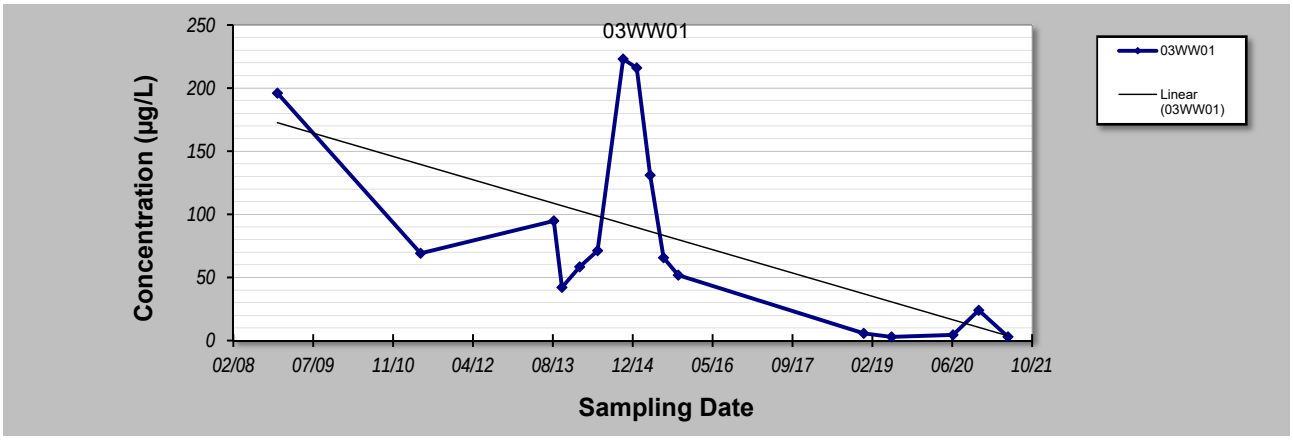
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	3-Aug-21	Job ID:	NWO1312.0150
Facility Name:	LHAAP-58	Constituent:	Trichloroethene
Conducted By:	Zachary Beck	Concentration Units:	µg/L
Sampling Point ID:	03WW01		

Sampling Event	Sampling Date	TRICHLOROETHENE CONCENTRATION (µg/L)
1	24-Nov-08	196
2	9-May-11	69.1
3	20-Aug-13	94.8
4	10-Oct-13	42.1
5	29-Jan-14	58.4
6	21-May-14	71.2
7	28-Oct-14	223
8	21-Jan-15	216
9	15-Apr-15	131
10	8-Jul-15	65.6
11	8-Oct-15	51.8
12	12-Dec-18	5.7
13	4-Jun-19	2.9
14	23-Jun-20	4.5
15	1-Dec-20	24
16	2-Jun-21	3
17		
18		
19		
20		
Coefficient of Variation:		0.95
Mann-Kendall Statistic (S):		-60
Confidence Factor:		99.7%
Concentration Trend:		Decreasing



Notes:

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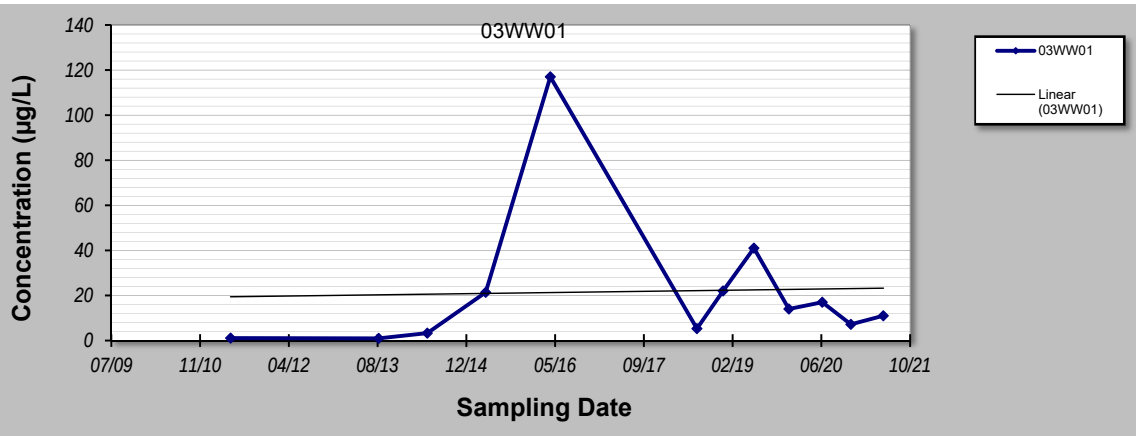
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	3-Aug-21	Job ID:	NWO1312.0150
Facility Name:	LHAAP-58	Constituent:	CIS-1,2-DICHLOROETHENE
Conducted By:	Zachary Beck	Concentration Units:	µg/L

Sampling Point ID: **03WW01**

Sampling Event	Sampling Date	CIS-1,2-DICHLOROETHENE CONCENTRATION (µg/L)
1	9-May-11	1.1
2	20-Aug-13	0.978
3	21-May-14	3.3
4	15-Apr-15	21.4
5	13-Apr-16	117
6	18-Jul-18	5.3
7	12-Dec-18	22
8	4-Jun-19	41
9	18-Dec-19	14
10	23-Jun-20	17
11	1-Dec-20	7.2
12	2-Jun-21	11
13		
14		
15		
16		
17		
18		
19		
20		
Coefficient of Variation:		1.47
Mann-Kendall Statistic (S):		16
Confidence Factor:		84.5%
Concentration Trend:		No Trend



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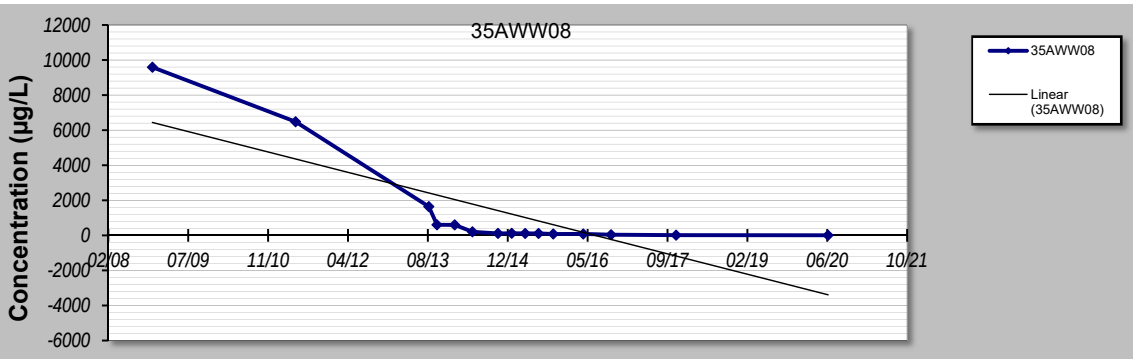
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	3-Aug-21	Job ID:	NWO1312.0150
Facility Name:	LHAAP-58	Constituent:	Tetrachloroethene
Conducted By:	Zachary Beck	Concentration Units:	µg/L
Sampling Point ID:	35AWW08		

Sampling Event	Sampling Date	TETRACHLOROETHENE CONCENTRATION (µg/L)
1	24-Nov-08	9590
2	9-May-11	6480
3	20-Aug-13	1640
4	10-Oct-13	603
5	29-Jan-14	599
6	20-May-14	204
7	27-Oct-14	112
8	21-Jan-15	119
9	15-Apr-15	110
10	8-Jul-15	110
11	8-Oct-15	79
12	13-Apr-16	80.1
13	4-Oct-16	36.9
14	15-Nov-17	12
15	23-Jun-20	6.7
16		
17		
18		
19		
20		
Coefficient of Variation:		2.14
Mann-Kendall Statistic (S):		-100
Confidence Factor:		>99.9%
Concentration Trend:		Decreasing



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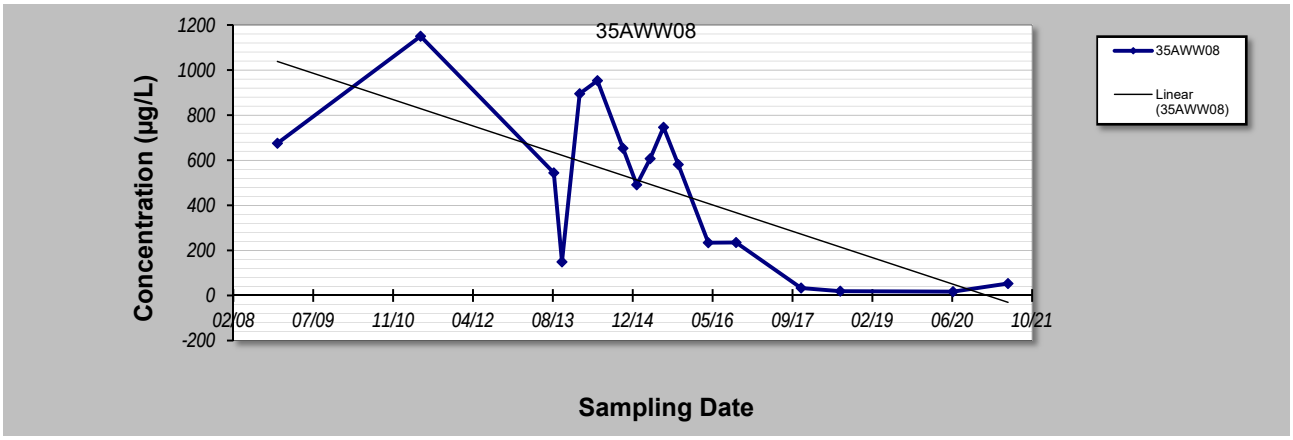
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	2-Sep-20	Job ID:	NWO1312.0150
Facility Name:	LHAAP-58	Constituent:	Trichloroethene
Conducted By:	Emma Gardner	Concentration Units:	µg/L
Sampling Point ID:	35AWW08		

Sampling Event	Sampling Date	TRICHLOROETHENE CONCENTRATION (µg/L)
1	24-Nov-08	675
2	9-May-11	1150
3	20-Aug-13	544
4	10-Oct-13	149
5	29-Jan-14	895
6	20-May-14	953
7	27-Oct-14	653
8	21-Jan-15	491
9	15-Apr-15	607
10	8-Jul-15	746
11	8-Oct-15	581
12	13-Apr-16	234
13	4-Oct-16	235
14	15-Nov-17	33
15	18-Jul-18	19
16	23-Jun-20	17
17	2-Jun-21	53
18		
19		
20		
Coefficient of Variation:		0.76
Mann-Kendall Statistic (S):		-78
Confidence Factor:		100.0%
Concentration Trend:		Decreasing



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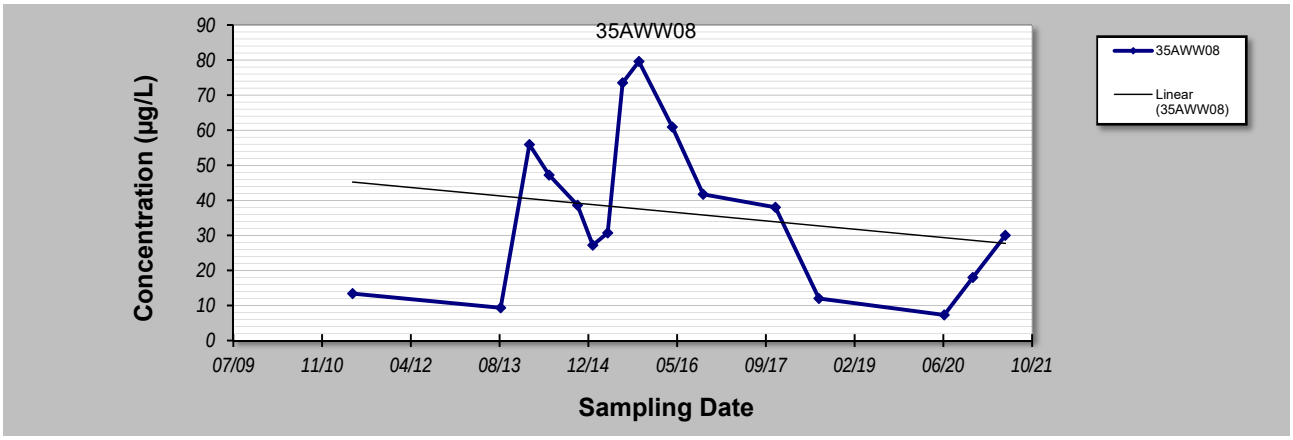
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	3-Aug-21	Job ID:	NWO1312.0150
Facility Name:	LHAAP-58	Constituent:	CIS-1,2-DICHLOROETHENE
Conducted By:	Zachary Beck	Concentration Units:	µg/L

Sampling Point ID: **35AWW08**

Sampling Event	Sampling Date	CIS-1,2-DICHLOROETHENE CONCENTRATION (µg/L)
1	9-May-11	13.4
2	20-Aug-13	9.35
3	29-Jan-14	55.9
4	20-May-14	47.2
5	27-Oct-14	38.6
6	21-Jan-15	27.2
7	15-Apr-15	30.7
8	8-Jul-15	73.5
9	8-Oct-15	79.6
10	13-Apr-16	60.9
11	4-Oct-16	41.7
12	15-Nov-17	38
13	18-Jul-18	12
14	23-Jun-20	7.3
15	1-Dec-20	18
16	2-Jun-21	30
17		
18		
19		
20		
Coefficient of Variation:		0.62
Mann-Kendall Statistic (S):		-14
Confidence Factor:		71.8%
Concentration Trend:		Stable



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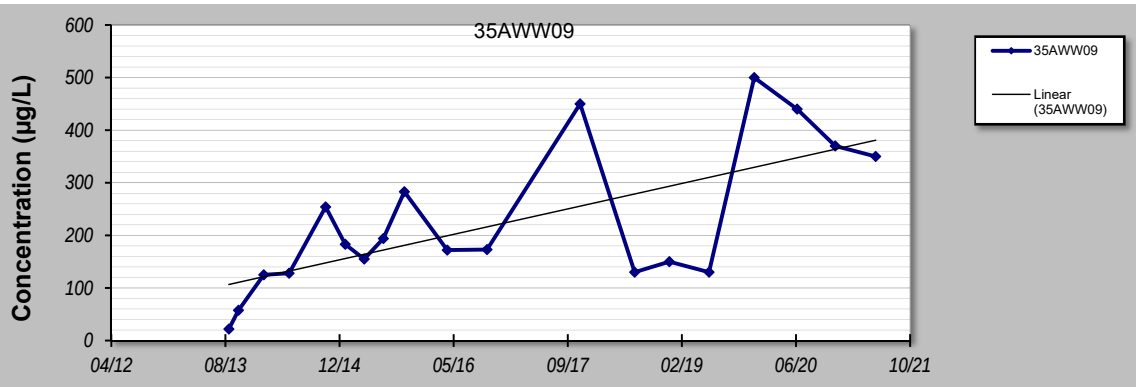
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	3-Aug-21	Job ID:	NWO1312.0150
Facility Name:	LHAAP-58	Constituent:	Tetrachloroethene
Conducted By:	Zachary Beck	Concentration Units:	µg/L
Sampling Point ID:	35AWW09		

Sampling Event	Sampling Date	TETRACHLOROETHENE CONCENTRATION (µg/L)
1	29-Aug-13	21.9
2	10-Oct-13	57.6
3	29-Jan-14	125
4	20-May-14	128
5	27-Oct-14	254
6	21-Jan-15	183
7	14-Apr-15	155
8	7-Jul-15	194
9	7-Oct-15	283
10	12-Apr-16	172
11	3-Oct-16	173
12	15-Nov-17	450
13	12-Jul-18	130
14	11-Dec-18	150
15	3-Jun-19	130
16	18-Dec-19	500
17	23-Jun-20	440
18	7-Dec-20	370
19	2-Jun-21	350
20		
Coefficient of Variation:		0.61
Mann-Kendall Statistic (S):		78
Confidence Factor:		99.7%
Concentration Trend:		Increasing



Notes:

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4. Any ND values <50 have been excluded.

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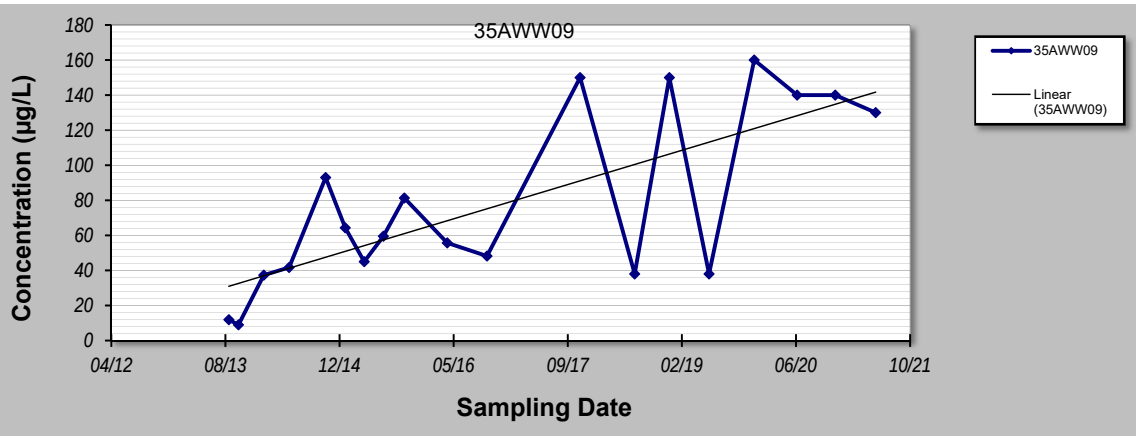
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	3-Aug-21	Job ID:	NWO1312.0150
Facility Name:	LHAAP-58	Constituent:	Trichloroethene
Conducted By:	Zachary Beck	Concentration Units:	µg/L
Sampling Point ID:	35AWW09		

Sampling Event	Sampling Date	TRICHLOROETHENE CONCENTRATION (µg/L)
1	29-Aug-13	11.9
2	10-Oct-13	8.97
3	29-Jan-14	37.3
4	20-May-14	41.7
5	27-Oct-14	93
6	21-Jan-15	64.3
7	14-Apr-15	45
8	7-Jul-15	59.5
9	7-Oct-15	81.3
10	12-Apr-16	55.7
11	3-Oct-16	48.2
12	15-Nov-17	150
13	12-Jul-18	38
14	11-Dec-18	150
15	3-Jun-19	38
16	18-Dec-19	160
17	23-Jun-20	140
18	7-Dec-20	140
19	2-Jun-21	130
20		
Coefficient of Variation:		0.64
Mann-Kendall Statistic (S):		76
Confidence Factor:		99.7%
Concentration Trend:		Increasing



Notes:

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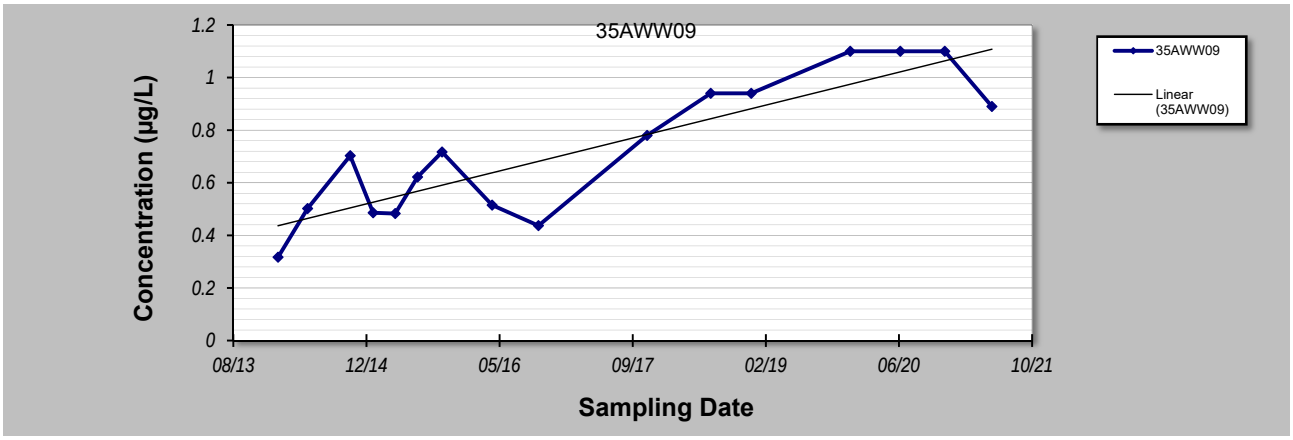
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	3-Aug-21	Job ID:	NWO1312.0150
Facility Name:	LHAAP-58	Constituent:	cis-1,2-Dichloroethene
Conducted By:	Zachary Beck	Concentration Units:	µg/L
Sampling Point ID:	35AWW09		

Sampling Event	Sampling Date	CIS-1,2-DICHLOROETHENE CONCENTRATION (µg/L)
1	29-Jan-14	0.317
2	20-May-14	0.502
3	27-Oct-14	0.703
4	21-Jan-15	0.486
5	14-Apr-15	0.483
6	7-Jul-15	0.622
7	7-Oct-15	0.717
8	12-Apr-16	0.515
9	3-Oct-16	0.437
10	15-Nov-17	0.78
11	12-Jul-18	0.94
12	11-Dec-18	0.94
13	18-Dec-19	1.1
14	23-Jun-20	1.1
15	7-Dec-20	1.1
16	2-Jun-21	0.89
17		
18		
19		
20		
Coefficient of Variation:		0.36
Mann-Kendall Statistic (S):		74
Confidence Factor:		>99.9%
Concentration Trend:		Increasing



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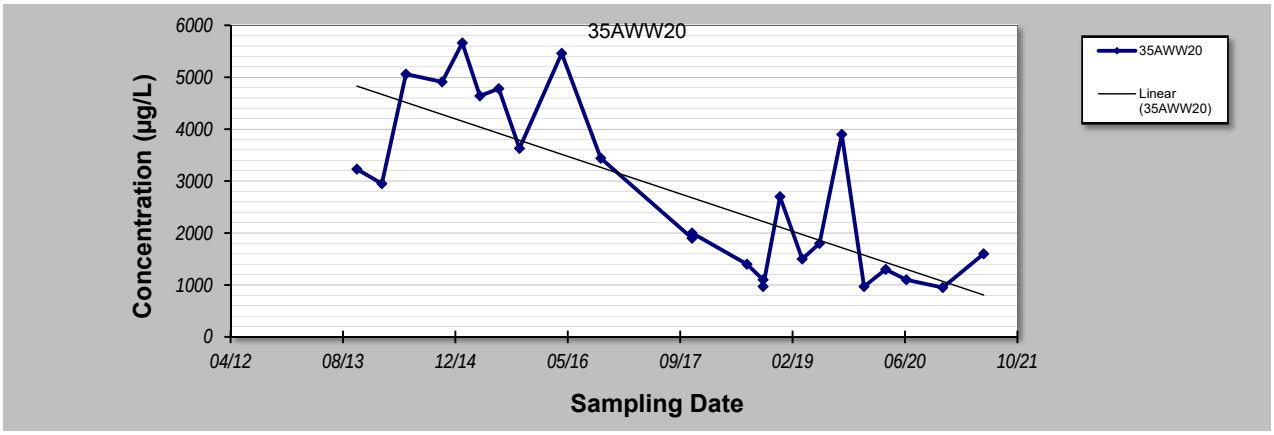
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 3-Aug-21
Facility Name: LHAAP-58
Conducted By: Zachary Beck

Job ID: NWO1312.0150
Constituent: 1,1-Dichloroethene
Concentration Units: µg/L

Sampling Point ID: 35AWW20

Sampling Event	Sampling Date	1,1-DICHLOROETHENE CONCENTRATION (µg/L)
1	15-Oct-13	3230
2	3-Feb-14	2950
3	21-May-14	5060
4	29-Oct-14	4910
5	27-Jan-15	5660
6	15-Apr-15	4640
7	8-Jul-15	4780
8	8-Oct-15	3630
9	13-Apr-16	5460
10	4-Oct-16	3440
11	14-Nov-17	1900
12	14-Nov-17	2000
13	16-Jul-18	1400
14	26-Sep-18	1100
15	26-Sep-18	970
16	10-Dec-18	2700
17	19-Mar-19	1500
18	4-Jun-19	1800
19	11-Sep-19	3900
20	19-Dec-19	970
21	24-Mar-20	1300
22	24-Jun-20	1100
23	3-Dec-20	950
24	3-Jun-21	1600
25		
Coefficient of Variation:		0.58
Mann-Kendall Statistic (S):		-150
Confidence Factor:		>99.9%
Concentration Trend:		Decreasing



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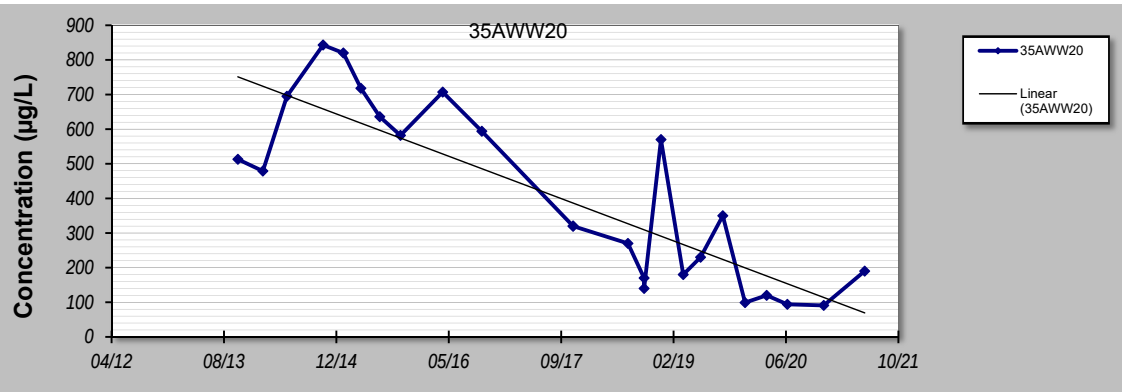
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 3-Aug-21
Facility Name: LHAAP-58
Conducted By: Zachary Beck

Job ID: NWO1312.0150
Constituent: Trichloroethene
Concentration Units: µg/L

Sampling Point ID: 35AWW20

Sampling Event	Sampling Date	TRICHLOROETHENE CONCENTRATION (µg/L)
1	15-Oct-13	513
2	3-Feb-14	479
3	21-May-14	695
4	29-Oct-14	843
5	27-Jan-15	820
6	15-Apr-15	718
7	8-Jul-15	636
8	8-Oct-15	582
9	13-Apr-16	707
10	4-Oct-16	594
11	14-Nov-17	320
12	14-Nov-17	320
13	16-Jul-18	270
14	26-Sep-18	170
15	26-Sep-18	140
16	10-Dec-18	570
17	19-Mar-19	180
18	4-Jun-19	230
19	11-Sep-19	350
20	19-Dec-19	99
21	24-Mar-20	120
22	24-Jun-20	94
23	3-Dec-20	91
24	3-Jun-21	190
25		
Coefficient of Variation:		0.62
Mann-Kendall Statistic (S):		-175
Confidence Factor:		>99.9%
Concentration Trend:		Decreasing



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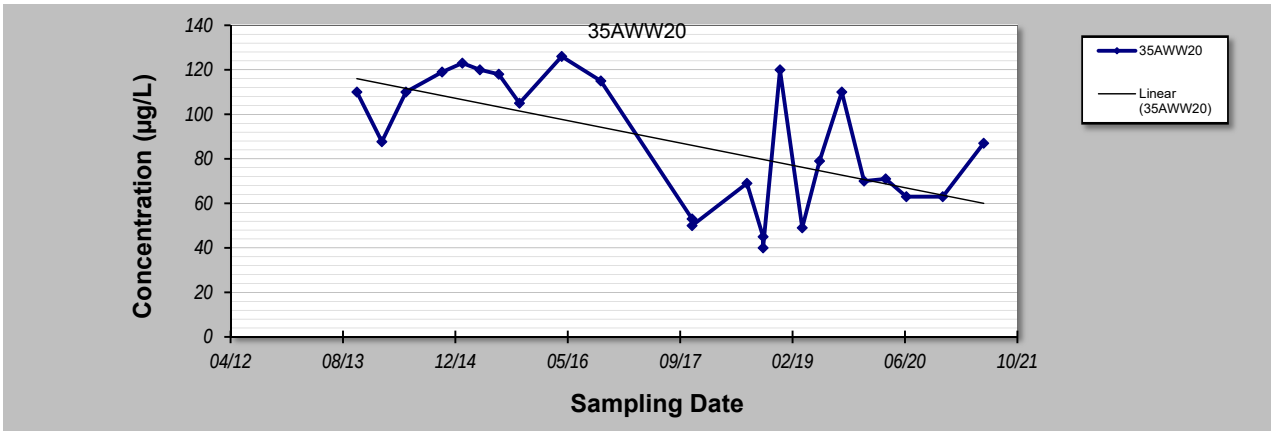
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 3-Aug-21
Facility Name: LHAAP-58
Conducted By: Zachary Beck
Job ID: NWO1312.0150
Constituent: cis-1,2-Dichloroethene
Concentration Units: µg/L

Sampling Point ID: 35AWW20

Sampling Event	Sampling Date	CIS-1,2-DICHLOROETHENE CONCENTRATION (µg/L)
1	15-Oct-13	110
2	3-Feb-14	87.7
3	21-May-14	110
4	29-Oct-14	119
5	27-Jan-15	123
6	15-Apr-15	120
7	8-Jul-15	118
8	8-Oct-15	105
9	13-Apr-16	126
10	4-Oct-16	115
11	14-Nov-17	53
12	14-Nov-17	50
13	16-Jul-18	69
14	26-Sep-18	45
15	26-Sep-18	40
16	10-Dec-18	120
17	19-Mar-19	49
18	4-Jun-19	79
19	11-Sep-19	110
20	19-Dec-19	70
21	24-Mar-20	71
22	24-Jun-20	63
23	3-Dec-20	63
24	3-Jun-21	87
25		
Coefficient of Variation:		0.33
Mann-Kendall Statistic (S):		-85
Confidence Factor:		98.2%
Concentration Trend:		Decreasing



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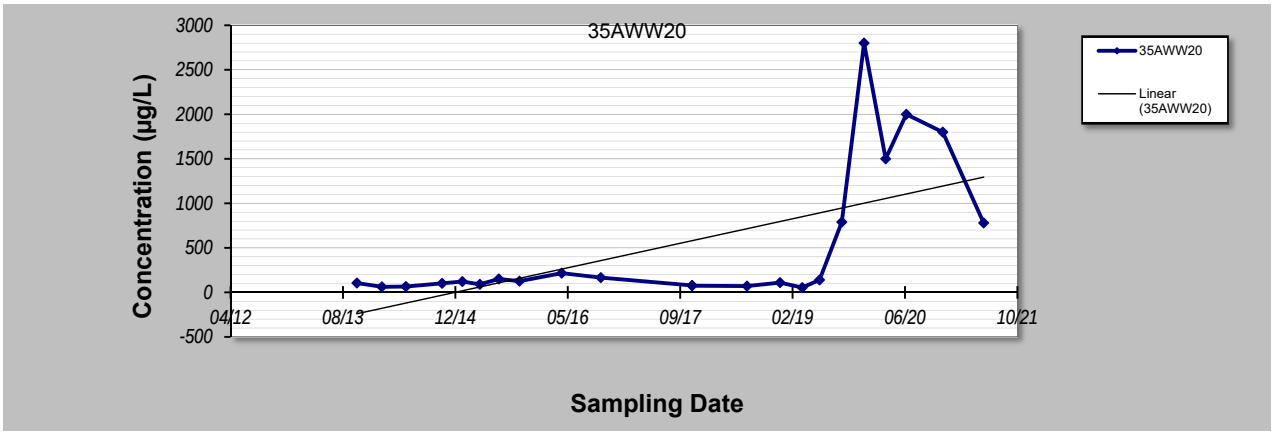
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	3-Aug-21	Job ID:	NWO1312.0150
Facility Name:	LHAAP-58	Constituent:	Vinyl Chloride
Conducted By:	Zachary Beck	Concentration Units:	µg/L

Sampling Point ID: **35AWW20**

Sampling Event	Sampling Date	VINYL CHLORIDE CONCENTRATION (µg/L)
1	15-Oct-13	105
2	3-Feb-14	62.4
3	21-May-14	65.7
4	29-Oct-14	102
5	27-Jan-15	122
6	15-Apr-15	90.6
7	8-Jul-15	151
8	8-Oct-15	126
9	13-Apr-16	216
10	4-Oct-16	166
11	14-Nov-17	78
12	14-Nov-17	75
13	16-Jul-18	71
14	10-Dec-18	110
15	19-Mar-19	54
16	4-Jun-19	140
17	11-Sep-19	790
18	19-Dec-19	2800
19	24-Mar-20	1500
20	24-Jun-20	2000
21	3-Dec-20	1800
22	3-Jun-21	780
23		
24		
25		
Coefficient of Variation:		1.51
Mann-Kendall Statistic (S):		99
Confidence Factor:		99.8%
Concentration Trend:		Increasing



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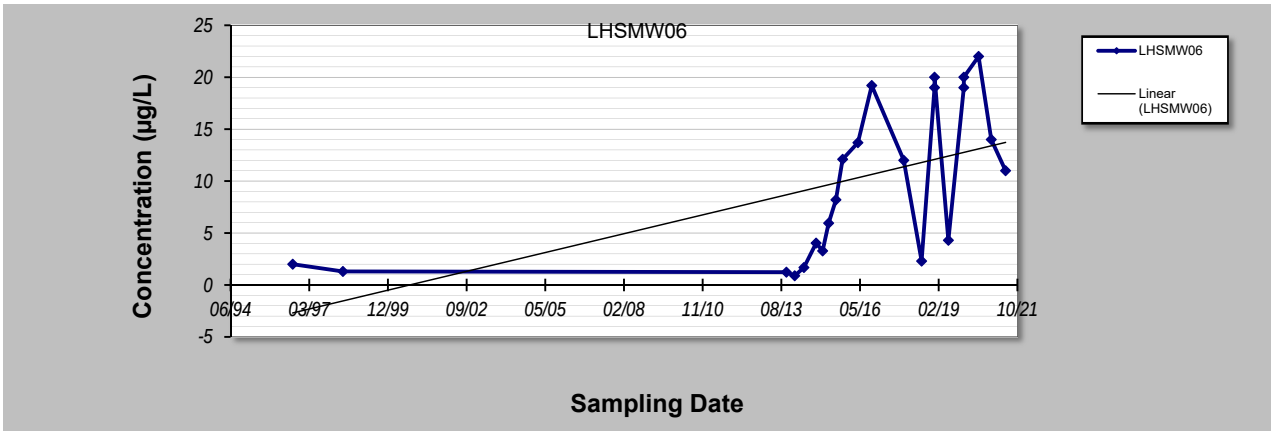
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 3-Aug-21
Facility Name: LHAAP-58
Conducted By: Zachary Beck

Job ID: NWO1312.0150
Constituent: 1,1-Dichloroethene
Concentration Units: µg/L

Sampling Point ID: LHSMW06

Sampling Event	Sampling Date	1,1-DICHLOROETHENE CONCENTRATION (µg/L)
1	13-Aug-96	2
2	13-May-98	1.3
3	17-Oct-13	1.23
4	31-Jan-14	0.884
5	28-May-14	1.68
6	30-Oct-14	4.03
7	21-Jan-15	3.28
8	7-Apr-15	5.95
9	9-Jul-15	8.2
10	2-Oct-15	12.1
11	13-Apr-16	13.7
12	6-Oct-16	19.2
13	17-Nov-17	12
14	2-Jul-18	2.3
15	13-Dec-18	19
16	13-Dec-18	20
17	7-Jun-19	4.3
18	20-Dec-19	19
19	20-Dec-19	20
20	25-Jun-20	22
21	3-Dec-20	14
22	3-Jun-21	11
23		
24		
25		
Coefficient of Variation:		0.76
Mann-Kendall Statistic (S):		137
Confidence Factor:		>99.9%
Concentration Trend:		Increasing



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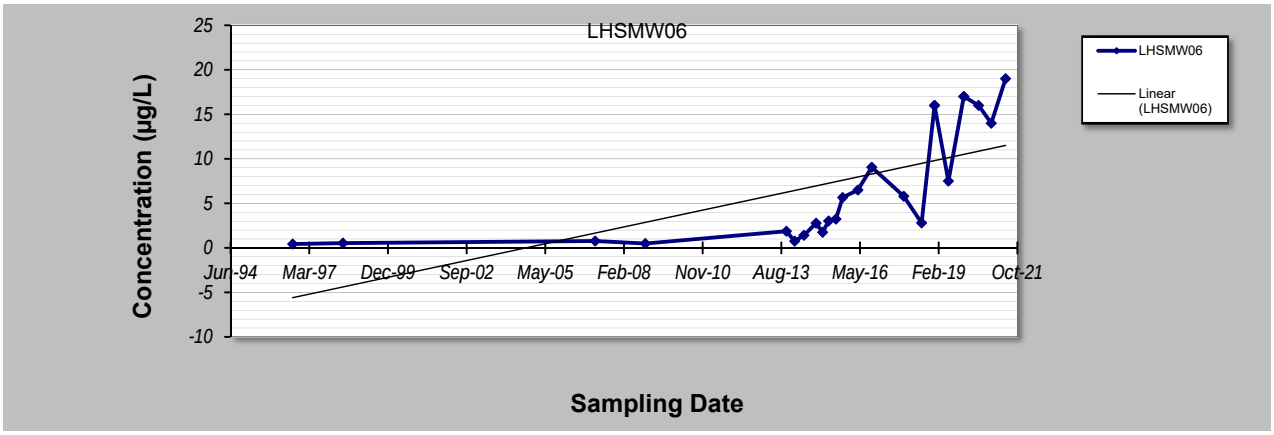
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 3-Aug-21
Facility Name: LHAAP-58
Conducted By: Zachary Beck

Job ID: NWO1312.0150
Constituent: Trichloroethene
Concentration Units: µg/L

Sampling Point ID: LHSMW06

Sampling Event	Sampling Date	TRICHLOROETHENE CONCENTRATION (µg/L)
1	13-Aug-96	0.43
2	13-May-98	0.53
3	21-Feb-07	0.77
4	19-Nov-08	0.486
5	17-Oct-13	1.87
6	31-Jan-14	0.751
7	28-May-14	1.41
8	30-Oct-14	2.77
9	21-Jan-15	1.75
10	7-Apr-15	3.02
11	9-Jul-15	3.23
12	2-Oct-15	5.66
13	13-Apr-16	6.5
14	6-Oct-16	9.06
15	17-Nov-17	5.8
16	2-Jul-18	2.8
17	13-Dec-18	16
18	13-Dec-18	16
19	7-Jun-19	7.5
20	20-Dec-19	17
21	20-Dec-19	17
22	25-Jun-20	16
23	3-Dec-20	14
24	3-Jun-21	19
25		
Coefficient of Variation:		0.93
Mann-Kendall Statistic (S):		222
Confidence Factor:		>99.9%
Concentration Trend:		Increasing



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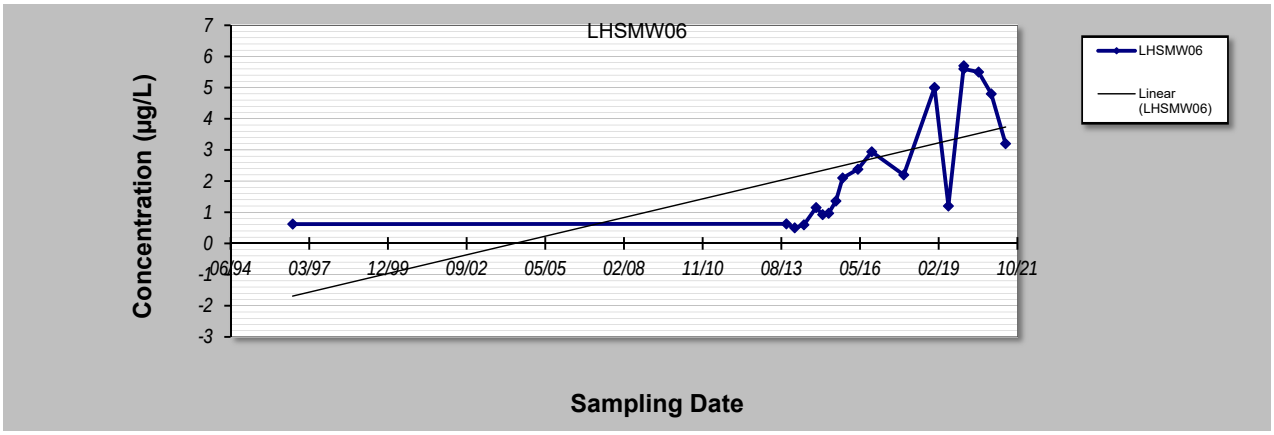
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 3-Aug-21
Facility Name: LHAAP-58
Conducted By: Zachary Beck

Job ID: NWO1312.0150
Constituent: Vinyl Chloride
Concentration Units: µg/L

Sampling Point ID: LHSMW06

Sampling Event	Sampling Date	VINYL CHLORIDE CONCENTRATION (µg/L)
1	13-Aug-96	0.62
2	17-Oct-13	0.627
3	31-Jan-14	0.5
4	28-May-14	0.597
5	30-Oct-14	1.15
6	21-Jan-15	0.924
7	7-Apr-15	0.967
8	9-Jul-15	1.36
9	2-Oct-15	2.1
10	13-Apr-16	2.38
11	6-Oct-16	2.94
12	17-Nov-17	2.2
13	13-Dec-18	5
14	13-Dec-18	5
15	7-Jun-19	1.2
16	20-Dec-19	5.7
17	20-Dec-19	5.6
18	25-Jun-20	5.5
19	3-Dec-20	4.8
20	3-Jun-21	3.2
21		
22		
23		
24		
25		
Coefficient of Variation:		0.74
Mann-Kendall Statistic (S):		131
Confidence Factor:		>99.9%
Concentration Trend:		Increasing



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
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4. Any ND values <50 have been excluded.

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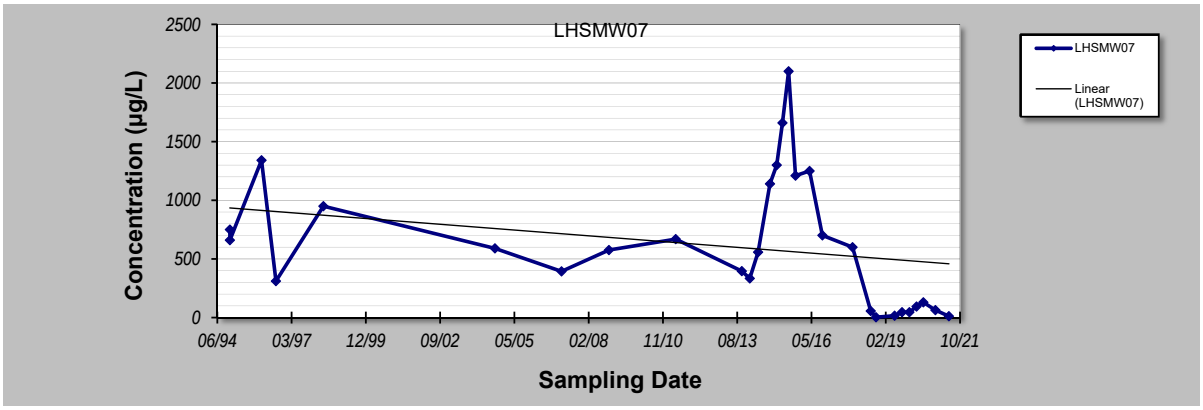
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 3-Aug-21
Facility Name: LHAAP-58
Conducted By: Zachary Beck

Job ID: NWO1312.0150
Constituent: 1,1-Dichloroethene
Concentration Units: µg/L

Sampling Point ID: LHSMW07

Sampling Event	Sampling Date	1,1-DICHLOROETHENE CONCENTRATION (µg/L)
1	1-Dec-94	750
2	1-Dec-94	660
3	31-Jan-96	1341
4	12-Aug-96	311
5	13-May-98	950
6	8-Sep-04	590
7	21-Feb-07	394
8	21-Nov-08	576
9	9-May-11	669
10	15-Oct-13	396
11	30-Jan-14	334
12	22-May-14	558
13	29-Oct-14	1140
14	28-Jan-15	1300
15	15-Apr-15	1660
16	7-Jul-15	2100
17	8-Oct-15	1210
18	14-Apr-16	1250
19	4-Oct-16	701
20	14-Nov-17	600
21	17-Jul-18	56
22	26-Sep-18	3.1
23	3-Jun-19	16
24	11-Sep-19	46
25	19-Dec-19	46
26	24-Mar-20	94
27	24-Jun-20	130
28	3-Dec-20	64
29	3-Jun-21	12
30		
Coefficient of Variation:		0.90
Mann-Kendall Statistic (S):		-133
Confidence Factor:		99.4%
Concentration Trend:		Decreasing



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
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4. Any ND values <50 have been excluded.

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GSI Environmental Inc., www.gsi-net.com

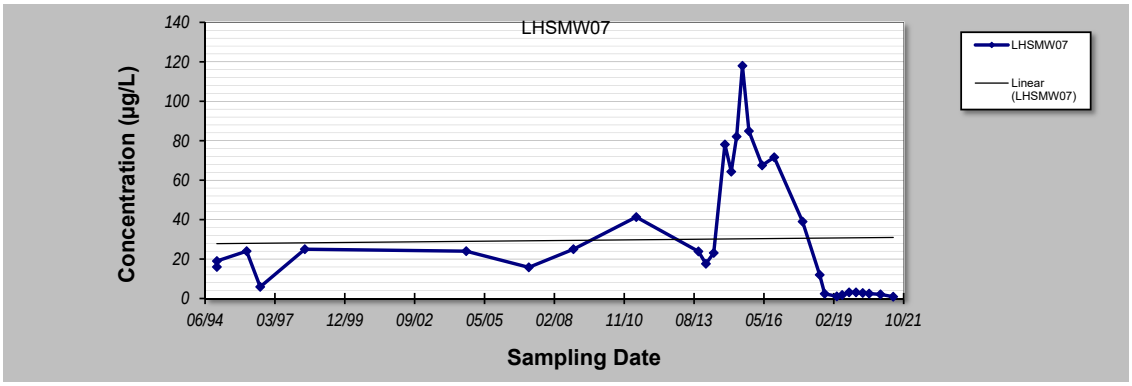
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 3-Aug-21
Facility Name: LHAAP-58
Conducted By: Zachary Beck

Job ID: NWO1312.0150
Constituent: Trichloroethene
Concentration Units: µg/L

Sampling Point ID: LHSMW07

Sampling Event	Sampling Date	TRICHLOROETHENE CONCENTRATION (µg/L)
1	1-Dec-94	16
2	1-Dec-94	19
3	31-Jan-96	24
4	12-Aug-96	5.9
5	13-May-98	25
6	8-Sep-04	24
7	21-Feb-07	15.8
8	21-Nov-08	25
9	9-May-11	41.3
10	15-Oct-13	23.9
11	30-Jan-14	17.6
12	22-May-14	23.1
13	29-Oct-14	78.1
14	28-Jan-15	64.3
15	15-Apr-15	82.1
16	7-Jul-15	118
17	8-Oct-15	84.9
18	14-Apr-16	67.5
19	4-Oct-16	71.6
20	14-Nov-17	39
21	17-Jul-18	12
22	26-Sep-18	2.4
23	19-Mar-19	1.1
24	3-Jun-19	1.8
25	11-Sep-19	3.1
26	19-Dec-19	3.1
27	24-Mar-20	2.8
28	24-Jun-20	2.5
29	3-Dec-20	2.1
30	3-Jun-21	0.91
31		
32		
33		
34		
35		
Coefficient of Variation:		1.06
Mann-Kendall Statistic (S):		-114
Confidence Factor:		97.8%
Concentration Trend:		Decreasing



Notes:

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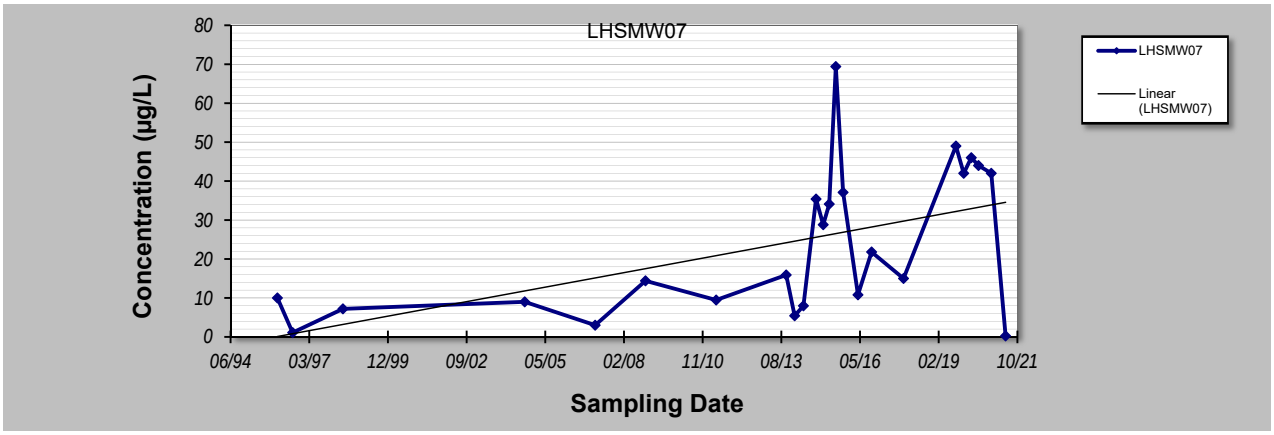
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 3-Aug-21
Facility Name: LHAAP-58
Conducted By: Zachary Beck

Job ID: NWO1312.0150
Constituent: Vinyl Chloride
Concentration Units: µg/L

Sampling Point ID: LHSMW07

Sampling Event	Sampling Date	VINYL CHLORIDE CONCENTRATION (µg/L)
1	31-Jan-96	10
2	12-Aug-96	1.1
3	13-May-98	7.2
4	8-Sep-04	9
5	21-Feb-07	3
6	21-Nov-08	14.4
7	9-May-11	9.47
8	15-Oct-13	15.9
9	30-Jan-14	5.43
10	22-May-14	7.98
11	29-Oct-14	35.4
12	28-Jan-15	28.8
13	15-Apr-15	34.1
14	7-Jul-15	69.4
15	8-Oct-15	37.1
16	14-Apr-16	10.8
17	4-Oct-16	21.8
18	14-Nov-17	15
19	11-Sep-19	49
20	19-Dec-19	42
21	24-Mar-20	46
22	24-Jun-20	44
23	3-Dec-20	42
24	3-Jun-21	0.25
25		
Coefficient of Variation:		0.81
Mann-Kendall Statistic (S):		123
Confidence Factor:		99.9%
Concentration Trend:		Increasing



Notes:

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From: Follin, Brian <Follin.Brian@epa.gov>
Sent: Thursday, February 17, 2022 11:49 AM
To: Foss, William A.; April Palmie
Cc: Williams, Aaron K SWF @SWT; rose.m.zeiler.ctr@army.mil; Rose M Zeiler (rose.zeiler@calibresys.com); Nieves, Ana C CIV USARMY IMCOM AEC (USA); pbging@usgs.gov; clbraun@usgs.gov; Montoya, Chelsea R CIV USARMY CESWF (USA); Sierocinski, Lena J CIV USARMY IMCOM AEC (USA); paul_bruckwicki@fws.gov; Kim Nemmers; Zack Beck; Srivastav, Praveen; Mayer, Robert
Subject: RE: Draft Final Fourth Annual RAO Report - LHAAP-35B (37)

EXTERNAL SENDER

I appreciate the responses to our comments and we are in agreement with all responses.

Thank you,

Brian Follin
(214)665-7490

From: Foss, William A. <William.Foss@aptim.com>
Sent: Tuesday, January 25, 2022 9:52 AM
To: Follin, Brian <Follin.Brian@epa.gov>; April Palmie <april.palmie@tceq.texas.gov>
Cc: Williams, Aaron K SWF @SWT <Aaron.K.Williams@usace.army.mil>; rose.m.zeiler.ctr@army.mil; Rose M Zeiler (rose.zeiler@calibresys.com) <rose.zeiler@calibresys.com>; Nieves, Ana C CIV USARMY IMCOM AEC (USA) <ana.c.nieves2.civ@mail.mil>; pbging@usgs.gov; clbraun@usgs.gov; Montoya, Chelsea R CIV USARMY CESWF (USA) <Chelsea.R.Montoya@usace.army.mil>; Sierocinski, Lena J CIV USARMY IMCOM AEC (USA) <lena.j.sierocinski.civ@mail.mil>; paul_bruckwicki@fws.gov; Kim Nemmers <knemmers@bhate.com>; Zack Beck <zbeck@bhate.com>; Srivastav, Praveen <Praveen.Srivastav@aptim.com>; Mayer, Robert <Robert.Mayer@aptim.com>
Subject: Draft Final Fourth Annual RAO Report - LHAAP-35B (37)

Brian and April,

The *Draft Final Fourth Annual Remedial Action Operation Report* for LHAAP-35B (37) has been uploaded to a subfolder in the "Documents" folder of the project portal for your review and can be accessed directly via the link provided below. The Draft Final document includes a table with responses to the EPA comments on the Draft report that were received from the USEPA on December 1, 2021. The TCEQ did not have any comments requiring a formal response. The RTC Table and Transmittal Letters are attached to this email for your convenience. In accordance with the Federal Facility Agreement, this Draft Final will be considered Final after 30 days without further comment. Electronic copies of the transmittal letters are included in the report PDF and are attached to this email for your convenience.

January 2022 Draft Final Fourth Annual Remedial Action Operation Report, LHAAP-35B (37)
(two files in folder, main text and all appendices except Appendix C - ~87 MB and Appendix C only - ~5.5 MB)
January 2022 Draft Final 4th Annual Remedial Action Operation Report - LHAAP-35B (37)

Please let us know if you have any questions or have any difficulty accessing the files. Thanks!

Bill

WILLIAM A. FOSS, PG
Senior Geologist

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APTIM | Government

O 713 243 7095
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DEPARTMENT OF THE ARMY
LONGHORN ARMY AMMUNITION PLANT
POST OFFICE BOX 220
RATCLIFF, AR 72951

January 25, 2022

DAIN-ODB-LO

Mr. Brian Follin
U.S. Environmental Protection Agency
1201 Elm Street, Suite 500
Dallas, TX 75270-2002

Re: Draft Final Fourth Annual Remedial Action Operation Report, LHAAP-35B (37) (Chemical Laboratory), Longhorn Army Ammunition Plant, Karnack, Texas, January 2022

Dear Mr. Follin,

An electronic copy of the above referenced document has been added to the project portal's "Documents" folder at the following address for your review: (https://docs.cbifederalservices.com/sites/501032/regulators/Shared%20Documents/Forms/AllItems.aspx). An electronic copy of this letter and download instructions for the electronic file have been sent via email. The document includes revisions based upon the Environmental Protection Agency's (EPA) comments on the Draft version received on December 1, 2021. The Texas Commission on Environmental Quality did not have any comments requiring a response. A table of responses to the EPA comments on the Draft version is included with this Draft Final document. In accordance with Federal Facility Agreement, this Draft Final will be considered Final after 30 days without further comment.

The document was prepared by Bhate Environmental Associates, Inc., (Bhate) team, on behalf of the Army as part of Bhate's Performance Based Remediation contract for the facility. I ask that Kim Nemmers, Bhate's Project Manager, be copied on any communications related to the project.

The point of contact for this action is the undersigned. I may be contacted at 479-635-0110, or by email at rose.m.zeiler.ctr@mail.mil.

Sincerely,

Rose M. Zeiler, Ph.D.
Longhorn AAP Site Manager

Electronic Copies furnished:
A. Palmie, TCEQ, Austin, TX
P. Bruckwicki, USFWS, Caddo Lake NWR, TX (1 hard copy and 1 CD)
C. Montoya, USACE, Tulsa District, OK
A. Williams, USACE, Tulsa District, OK
A. Nieves Milian, USAEC, San Antonio, TX
K. Nemmers, Bhate, Lakewood, CO
P. Srivastav, APTIM, Houston, TX

DEPARTMENT OF THE ARMY
LONGHORN ARMY AMMUNITION PLANT
POST OFFICE BOX 220
RATCLIFF, AR 72951

January 25, 2022

DAIN-ODB-LO

Ms. April Palmie
Texas Commission on Environmental Quality
Superfund Section, MC-136
12100 Park 35 Circle, Bldg D
Austin, TX 78753

Re: Draft Final Fourth Annual Remedial Action Operation Report, LHAAP-35B (37) (Chemical Laboratory), Longhorn Army Ammunition Plant, Karnack, Texas, January 2022

Dear Ms. Palmie,

An electronic copy of the above referenced document has been added to the project portal's "Documents" folder at the following address for your review: (https://docs.cbifederalservices.com/sites/501032/regulators/Shared%20Documents/Forms/AllItems.aspx). An electronic copy of this letter and download instructions for the electronic file have been sent via email. The document includes revisions based upon the Environmental Protection Agency's (EPA) comments on the Draft version received on December 1, 2021. The Texas Commission on Environmental Quality did not have any comments requiring a response. A table of responses to the EPA comments on the Draft version is included with this Draft Final document. In accordance with Federal Facility Agreement, this Draft Final will be considered Final after 30 days without further comment.

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Sincerely,

Rose M. Zeiler, Ph.D.
Longhorn AAP Site Manager

Electronic Copies furnished:
B. Follin, USEPA Region 6, Dallas, TX
P. Bruckwicki, USFWS, Caddo Lake NWR, TX (1 hard copy and 1 CD)
C. Montoya, USACE, Tulsa District, OK
A. Williams, USACE, Tulsa District, OK
A. Nieves Milian, USAEC, San Antonio, TX
K. Nemmers, Bhate, Lakewood, CO
P. Srivastav, APTIM, Houston, TX

Response to Comments on
Draft Fourth Annual Remedial Action Operation Report, LHAAP-35B (37)
(Chemical Laboratory)
Longhorn Army Ammunition Plant, Karnack, Texas

Document Date: 12 October 2021
Comment Date: 01 December 2021

Reviewer: Brian Follin, EPA
Respondent: Dr. Rose Zeiler

1. Respondent Concurs (C), Does Not Concur (D), Takes Exception (E), or Delete (X)
2. Commenter Agrees (A) with response, or Does Not Agree (D) with response

Comment Ref. #	Section, Page Ref.	TCEQ Comment	C, D, E, or X	Response	A or D[2]
1.	Section 2.2.2	How much higher is the groundwater elevation in 35BWW01? Would be good to state in report to understand why not included in the potentiometric surface (i.e., 8 to 13 ft higher) even though shown on maps (figure 2-2 and 2-3).	C	The text will be revised to "The screened interval at 35BWW01 is located approximately 15 feet higher in elevation than the other shallow wells and is not representative of the shallow groundwater."	
2.	Section 2.2.3	Previous page you indicate 25 wells selected for sampling but in this section, you indicate 22 wells. Difference is WW02 is dry and WW03 and WW06 are not sampled. Why is WW03 not shown on figure 2-1 when WW02 and WW06 are?	C	The text in Section 2.2 will be revised to include the following sentence after the referenced statement regarding 25 wells selected for sampling in the RACR: "Of the 25 wells selected for sampling in the RACR, 22 were sampled as part of the Year 4 RA-O events, while 35BWW02 was removed from the monitoring program, as discussed in Section 2.2.1, and 35WWW03 and 35BWW06 are only sampled every 5 years for the Five Year Review."	

				Monitoring well 35BWW03 will be added to Figure 2-1 to show all the wells present at the site.	
3.	Section 2.2.3	WW07 needs a blue box on figure 2-1 but WW06 needs the blue box removed to be consistent with the text on sampling done in Year 4.	C	Blue boxes will be added to Monitoring wells 35BWW03 and 35BWW06 because they are sampled at this site, however only once every 5 years. A blue box has also been added to 35BWW07.	
4.	Section 2.2.3	Why is WW06 shown on potentiometric maps when WW02 and WW03 are not?	C	Monitoring wells 35BWW02 and 35BWW03 will be added to Figures 2-2 and 2-3 with the notation that they were not measured.	
5.	Section 2.2.3	35BWW03 does not appear on figure 2-4 (Oct 2013 sampling) but text indicates was last sampled in August 2016. Should the results for that site be included in figure?	C	Figure 2-4 will be revised to include data from the October 5, 2013 sample at 35BWW03 and the figure name has been revised to "Baseline Results 2013/2014" for clarity.	
6.	Section 2.3	Why compare groundwater elevations in only 35BWW05 and 35BWW12 to creek bottom? Why not 35BWW04 as well?	E	Monitoring wells 35BWW05 and 35BWW12 were selected in the RAWP to be representative of the shallow groundwater zone and to be used for the comparison of groundwater to the creek bottom surface because they are the closest locations to the surface water sampling locations. As discussed in the response to comment #1, 35BWW01, located closer to 35BSW01 than 35BWW05, is screened approximately 15 feet shallower than the other shallow wells and is not representative of groundwater elevations in the main shallow aquifer.	
7.	Section 3.1	Not truly "trend" lines shown on Figures 2-7a and 2-7b.	C	The text will be updated to read, "To aid in evaluating COCs, concentrations are graphed over time on Figures 2-7a and 2-7b. "	

8.	Section 3.1	Figure 2-7a, TCE graph for 35WW05 is in red like the PCE lines of other graphs. Is it really TCE or PCE?	C	Yes, the red line is TCE; however, the color will be updated to match TCE on the other graphs.	
9.	Section 3.1	35BWW08 and 35BWW10 are not shown in Figure2-7.	C	Data for monitoring wells 35BWW08 and 35BWW10 are not shown on the figure because neither well currently has a COCs above their respective MCLs.	
10.	Section 3.1.3	Should the word "normal" sample be used? Maybe original sample or first sample collected?	C	The text will be changed to "regular" which matches what is shown on the data tables.	
11.	Section 3.1.3	The following statement is confusing: "During the Year 4 RA-O, the number of wells with statistically significantly decreasing trends increased from four in Year 3 to five, both of which are above the one well with a significant decreasing trend observed during the Year 2 RA-O." Should read "During the Year 4 RA-O, the number of wells with statistically significantly decreasing trends increased from four in Year 3 to five; the number of wells in both cases exceeds the number of wells at which a significant decreasing trend was observed during the Year 2 RA-O (one)."	C	Concur, text will be updated as requested.	
12.	Section 3.1.5	Not quite sure why WW06 and WW02 are actually		All of the wells discussed in the text are shown on the Figures. The figures will be updated as shown below.	

		labeled on maps for figure 2-4, 2-5, 2-6.		Figure 2-4 – Monitoring wells 35WW03 and 35WW06 were sampled and the data is provided. Monitoring well 35BWW02 will be removed. Figure2-5 – Monitoring wells 35BWW02, 35BWW03, and 35WW06 will be shown; however, they will have a symbol showing them as "Not Sampled" Figure 2-6 - Monitoring wells 35BWW02, 35BWW03, and 35WW06 will be shown; however, they will have a symbol showing them as "Not Sampled"	

Draft Final

Fourth Annual Remedial Action Operation Report, LHAAP-35B (37) (Chemical Laboratory)

Longhorn Army Ammunition Plant
Karnack, Texas

Prepared for

U.S. Army Corps of Engineers, Tulsa District
Contracting Division
2488 East 81st Street
Tulsa, Oklahoma 74137-4290

Prepared by

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Birmingham, Alabama 35205
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10333 Richmond Ave., Suite 1030
Houston, Texas 77042

Contract No. W9128F-13-D-0012
Task Order No. W9128BV17F0150
Project No. 501032
Rev 0
January 2022

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Contract No. W9128F-13-D-0012, Task Order No. W9128BV17F0150 • Draft Final • Rev 0 • January 2022

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Acronyms and Abbreviations

µg/L	micrograms per liter
J	estimated value
AECOM	AECOM Technical Services, Inc.
Bhate	Bhate Environmental Associates, Inc.
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
COC	contaminant of concern
DCE	dichloroethene
DPT	direct-push technology
DO	dissolved oxygen
Jacobs	Jacobs Engineering Group, Inc.
LHAAP	Longhorn Army Ammunition Plant
LTM	long-term monitoring
LUC	land use control
MCL	maximum contaminant level
mg/L	milligram(s) per liter
MNA	monitored natural attenuation
MSL	mean sea level
mV	millivolts
No.	number
ORP	oxidation-reduction potential
PCE	tetrachloroethene
RA-O	remedial action operation
RACR	Remedial Action Completion Report
RAWP	Remedial Action Work Plan
RI	remedial investigation
ROD	Record of Decision
SCL	sample collection log
Shaw	Shaw Environmental & Infrastructure, Inc.
SU	standard unit(s)
TCE	trichloroethene
TCEQ	Texas Commission on Environmental Quality
TNT	trinitrotoluene
TOC	total organic carbon
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
VOC	volatile organic compound

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1.0 INTRODUCTION

The U.S. Army Corps of Engineers (USACE), Tulsa District, contracted with Bhate Environmental Associates, Inc. (Bhate) under the Omaha Multiple Environmental Government Acquisition National Small Business Multiple Award Task Order Contract, Environmental Remediation Services with Military Munitions Response Program, Task Order Number (No.) W9128BV17F0150, to conduct environmental restoration at multiple sites at the former Longhorn Army Ammunition Plant (LHAAP). The Bhate Team consists of Bhate and Aptim Federal Services, LLC.

LHAAP is located in east Texas in the northeastern corner of Harrison County between State Highway 43 in Karnack, Texas, and the western shore of Caddo Lake (**Figure 1-1**). The nearest cities are Marshall, Texas, approximately 14 miles to the southwest, and Shreveport, Louisiana, approximately 40 miles to the east. Caddo Lake is a large freshwater lake that bounds LHAAP to the north and east. The eastern fence of the LHAAP installation is 3.5 miles from the Texas-Louisiana state border.

LHAAP was established in December 1941 with the primary mission of manufacturing trinitrotoluene (TNT). Production of TNT began at Plant 1 in October 1942 through 1945, when the facility was placed on standby status. In February 1952, the facility was reactivated and production of pyrotechnic ammunition, such as photoflash bombs, simulators, hand signals, and tracers for 40-millimeter ammunition continued at Plant 2, northeast of Plant 1, through 1956. In December 1954, a third facility, Plant 3, began production of solid-fuel rocket motors for tactical missiles until 1965, when Plant 2 was reactivated for the production of pyrotechnic and illuminating ammunition. In the years following the Vietnam conflict, LHAAP continued to produce flares and other basic pyrotechnic or illuminating items for the U.S. Department of Defense inventory. From September 1988 to May 1991, LHAAP was also used for the static firing and elimination of Pershing I and II rocket motors.

Remedial action operation (RA-O) activities are required at LHAAP-35B (37) under the Record of Decision (ROD) issued for the site in June 2010 (USACE 2010). The Remedial Action Completion Report (RACR) (AECOM 2016) outlines the implementation of RA-O to address risks associated with contaminated groundwater at the LHAAP-35B (37) site. The RACR (AECOM 2016) was developed using the basis and details of the Remedial Design (USACE 2011) and the Remedial Action Work Plan (RAWP) (AECOM 2013) for LHAAP-35B (37), and included the installation of three wells, 35BWW24, 35BWW25, and 35BWW26, and their inclusion into the monitoring network.

A field demonstration pilot study of the bio-plug technology was conducted at the site during September 2012 through June 2014 (AECOM 2016). The purpose of the pilot study was to determine the feasibility of the bio-plug technology to accelerate the aerobic biological degradation of volatile organic compounds (VOC) in the groundwater at the site. The pilot study commenced in September 2012 and concluded with the final groundwater sampling round in October 2014. Interpretation of data generated through these events indicated reduction of contaminant concentrations was not sufficient to justify continuation of the demonstration.

Groundwater monitoring at LHAAP-35B (37) is ongoing as described in the RACR (AECOM 2016). This report represents Year 4 of the RA-O implementation and summarizes the results of site inspections and sampling activities. Baseline sampling was conducted in October 2013. A Groundwater Geochemistry Rebound Evaluation Memorandum for Record was submitted February 2017, which determined that the aquifer is sufficiently recovered to its pre-bio-plug study geochemical state to begin implementation of the monitored natural attenuation (MNA) remedy (AECOM 2017). The first year RA-O report, representing sampling events conducted in November 2017 and February, May, and August 2018, was submitted in March 2019 (Bhate 2019a). The second year RA-O report, representing sampling events conducted in November 2018 and February, May, and August 2019, was submitted in April 2020 (Bhate 2020a). The third year RA-O report, representing the first set of semiannual sampling events conducted in November 2019 and May 2020, was submitted in November 2020 (Bhate 2020b). An evaluation of the effectiveness of the selected MNA remedy is presented in this Year 4 report and includes historical data from 1994 through May 2021.

1.1 Remedial Action Objectives

The remedial action objectives at LHAAP-35B (37) are based on protection of human health and meeting applicable or relevant and appropriate requirements. There are no ecological risks at the LHAAP-35B (37) site (USACE 2010).

The remedial action objectives for the LHAAP-35B (37) site, consistent with the reasonably anticipated future use as a national wildlife refuge, are:

- Ensure protection of human health by preventing human exposure to the contaminated groundwater.
- Ensure protection of human health and the environment by preventing contaminated groundwater from migrating into nearby surface water.
- Ensure return of groundwater to its potential beneficial use as drinking water, wherever practicable.

1.2 Performance Objectives

The remedy selected for LHAAP-37 (USACE 2010) is land use control (LUC), MNA, and long-term monitoring (LTM).

The remedy includes the following components:

- **LUC:** LUC in the impacted area ensures protection of human health by restricting the use of groundwater exceeding the applicable cleanup levels to environmental monitoring and testing only. The LUC will remain in effect until such time as the U.S. Army, U.S. Environmental Protection Agency (USEPA), and Texas Commission on Environmental Quality (TCEQ) agree that contaminant of concern (COC) concentrations have met cleanup levels. As a component of the LUC implementation, the civil survey of the LUC boundary was conducted in January 2015 and recorded in the Harrison County Courthouse in March 2015.
- **RA-O:** An MNA program has been implemented as part of the RA-O to establish attenuation trends and verify that the VOC plume is stable or shrinking and will not migrate to nearby surface water (Goose Prairie Creek) at levels that may present an unacceptable risk to human health or the environment. Natural attenuation is expected to return groundwater to acceptable quality over time. The MNA program performance objectives have been evaluated after four years of RA-O groundwater monitoring. During those four years, groundwater monitoring was performed on a quarterly basis for the first two years and semiannually for the third and fourth years. RA-O monitoring will continue semiannually for an additional two years.
- **LTM:** Following the completion of three years of semiannual monitoring, groundwater monitoring will be performed annually until the next Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) Five-Year Review. RA-O associated with this remedy will be used to track the continued effectiveness of MNA. Further reductions in sampling will depend on the Five-Year Reviews, but sampling will be conducted at least once every five years until the cleanup levels are achieved.

According to the RACR (AECOM 2016), groundwater monitoring is being performed to evaluate remedy effectiveness and includes groundwater and surface water monitoring. The groundwater monitoring program is designed to evaluate and monitor natural attenuation of COCs in Shallow Zone groundwater, and the surface water monitoring program is designed to evaluate potential migration of contaminated groundwater to surface water.

The combined monitoring program will meet the following objectives (AECOM 2013):

- Demonstrate that natural attenuation is effectively occurring.
- Detect changes in environmental conditions (e.g., geochemical, hydrogeologic, etc.) that may reduce the efficacy of natural attenuation processes.
- Identify potentially toxic and/or mobile transformation products.
- Verify that the plume(s) is not expanding.
- Verify no unacceptable impact to downgradient receptors.
- Detect new releases of contaminants to the environment that could impact effectiveness of the natural attenuation remedy.
- Verify attainment of the remediation objectives.

Work completed as part of the Year 4 (2020/2021) RA-O consisted of the following:

- November 2020 groundwater monitoring event consisting of 22 planned wells.
- May 2021 groundwater monitoring event consisting of 22 planned wells.
- May 2021 surface water monitoring event consisting of two planned locations.
- LUC inspection (December 2020).
- Well maintenance activities.

This report summarizes the LUC compliance inspection, the results of groundwater sampling, and an evaluation of MNA.

1.3 Site Description

LHAAP-35B (37) is located in the central portion of LHAAP, as shown on **Figure 1-2**, and covers an area of approximately 16.5 acres. The site topography is relatively flat. The nearest significant surface water body is Goose Prairie Creek, which runs through the site. Goose Prairie Creek eventually flows into Caddo Lake; however, it is often dry at LHAAP-35B (37).

At LHAAP-35B (37), a Chemical Laboratory and associated buildings were built during the construction of Plant 3 (1953–1955) and were originally used to support the production activities at LHAAP. These support activities included research and testing of materials used in the production processes and quality assurance testing. Also, one waste rack sump was located at the site. In 1998, the site was used as a staging area in support of investigation activities.

The LUC area associated with the groundwater use restriction at LHAAP-35B (37) encompasses the northern half of the site and extends beyond the historical site boundaries along the western, eastern, and northern boundaries of the site. The LUC area encompasses a total of 16.5 acres and has no known areas of archaeological or historical importance.

1.4 Conceptual Site Model

A detailed Conceptual Site Model of LHAAP-35B (37) was presented in the ROD (USACE 2010). Although the groundwater is not currently being used, nor is it expected to be used in the future, the groundwater pathway is being considered for remediation because it has the potential to present an unacceptable risk to a maintenance worker.

COCs identified in the ROD for LHAAP-35B (37) groundwater are tetrachloroethene (PCE), trichloroethene (TCE), and 1,1-dichloroethene (DCE). The historical presence of these COCs in the shallow groundwater zone represents the primary driver for remedial action as they are at concentrations above the human health standard for a hypothetical future maintenance worker under a nonresidential exposure scenario. Although 1,1-DCE is a COC, this compound was not detected above the maximum contaminant level (MCL) of 7.0 micrograms per liter (µg/L) during the Year 2, 3, or 4 RA-O.

Antimony and thallium were detected in groundwater at the LHAAP-35B (37) prior to the remedial investigation (RI) conducted in 2002, and the RI concluded that they are not considered to be COCs at this site (Jacobs 2002). The 2016 RACR stated that since the previous detections of antimony and thallium results were estimated value (J)-qualified results, samples were to be collected during the second quarter Year 1 RA-O sampling event to determine the need for further sampling. During the second quarter Year 1 RA-O sampling event in March 2018, concentrations of antimony and thallium were below their respective MCLs, and these analytes were excluded from the future sampling as approved in the Year 1 RA-O report.

Based on groundwater level data collected 2013 through 2021, the dominant Shallow Zone groundwater gradient is to the northeast. However, in 2019, the groundwater elevations increased significantly, and in the area to the west of the site boundary but within the LUC boundary, the groundwater flow direction was to the north-northwest in Year 2. During the Year 4 RA-O, the groundwater flow direction to the west of the site boundary was to the northeast in November 2020 and to the northwest in May 2021. During the spring sampling event in May 2021, the groundwater elevations were approximately two feet higher than they were in November 2020, which may indicate that the flow direction in the area west of the site boundary is more sensitive to fluctuations than areas to the east. The potentiometric data will continue to be evaluated to determine if this relationship between groundwater elevation and flow direction changes.

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Groundwater monitoring has shown that contaminants are confined to the shallow groundwater. Monitoring well 35BWW03 is installed in the Intermediate Zone; and monitoring well 35BWW06 is installed in the lower portion of the Shallow Zone. The continued low levels of COCs in well 35BWW06 in the lower portion of the Shallow Zone and intermediate well 35BWW03 indicate that the plume has been vertically delineated, with no Intermediate Zone impacts identified. As described in the RACR, direct-push technology (DPT) wells DPT-03 and DPT-06 were installed in the Intermediate Zone, and because groundwater samples from these DPT wells did not indicate VOCs exceeding cleanup levels, no additional Intermediate Zone wells were installed. According to the RAWP (AECOM 2013), sampling of these two wells will be performed every five years to support the Five Year Review. Monitoring well 35BWW03 was last sampled in August 2016 and monitoring well 35BWW06 was last sampled in November 2018; the results at both wells were below detection limits or below MCLs. These two wells will be sampled again in November 2021 to support the next Five Year Review.

In the ROD (USACE 2010), contamination was known to be present only on the west side of the creek, and modeling calculations were completed (Shaw 2007) to assess the potential for the COCs present in shallow groundwater at LHAAP-35B (37) to migrate toward and discharge to Goose Prairie Creek. The modeling assumed contaminants were not leaching from vadose zone soil to groundwater. Based on the results of the model, PCE and 1,1-DCE would not appear at detectable levels where groundwater discharges into Goose Prairie Creek. Groundwater contamination was detected to the east of the creek during Year 1 RA-O monitoring. However, contaminants were not detected in the surface water sampling conducted in Year 1, Year 2, or Year 3. During the Year 4 RA-O, groundwater elevations in wells designated in the RACR for comparison were below the creek bottom, indicating that contamination cannot impact the surface water. Shallow monitoring well 35BWW01 is the only well where groundwater elevations were observed above the creek bottom. Comparison of this well to others at the site suggests this water is likely to be perched. The continued lack of COCs at this well indicate that even if the groundwater were to reach the creek, the creek will not be impacted by COCs. The groundwater elevations in COC impacted wells near the creek indicate that COC impacted groundwater is not discharging to Goose Prairie Creek.

2.0 SITE ACTIVITIES AT LHAAP-35B (37)

This chapter describes the results of the Year 4 RA-O activities including the annual LUC compliance inspection, quarterly groundwater monitoring, and monitoring system repairs and/or maintenance performed at LHAAP-35B (37).

2.1 Annual Land Use Control Compliance Inspection

The annual LUC compliance inspection for LHAAP-35B (37) was performed on December 29, 2020. The LUC for this site is groundwater restriction, which prohibits water well installation for any purpose other than environmental monitoring and testing. Also, the LUC prohibits residential groundwater use until the levels of COCs in the groundwater allow unrestricted use and unlimited exposure. The restriction applies to groundwater underlying an approximately 16.5-acre area defined by the surveyed LUC boundary (AECOM 2016). The Annual LUC Compliance Certification Documentation Form for the Year 4 RA-O monitoring period is included in **Appendix A**. No noncompliance issues or concerns were noted during the annual inspection.

2.2 Groundwater Monitoring

The Year 4 RA-O monitoring is the second of three years of semiannual monitoring. Groundwater sampling events were completed in November 2020 and May 2021. Prior to Year 3 and 4 RA-O groundwater sampling events, quarterly sampling was conducted. In the RACR (AECOM 2016), 25 wells were selected for sampling. Of the 25 wells selected for sampling in the RACR, 22 were sampled as part of the Year 4 RA-O events, while 35BWW02 was removed from the monitoring program as discussed in Section 2.2.1, and 35WWW03 and 35BWW06 are only sampled every 5 years for the Five Year Review. Monitoring well locations sampled for the November 2020 and May 2021 sampling events are depicted on **Figure 2-1**.

Prior to collecting groundwater samples, monitoring wells were gauged using a water level probe, and the depth to water was recorded to the nearest 0.01-foot from the top of casing. Depth-to-water measurements were used to calculate the groundwater elevations presented in **Table 2-2** and on the potentiometric surface figures (**Figures 2-2** and **2-3**).

Water samples were collected using low-flow sampling techniques as described in the groundwater sampling procedures found in the *Final Installation-Wide Work Plan* (Bhate 2018).

2.2.1 Approved Modifications to the Groundwater Monitoring Program

Minor modifications have been made to the groundwater monitoring program, in coordination with USEPA and the TCEQ, since it was first developed in the RAWP (AECOM 2013).

- Monitoring well 35BWW02 was dry during each quarter of Year 1 RA-O groundwater sampling, and the Year 1 RA-O Report recommended that it be removed from the groundwater-monitoring program for Year 2 RA-O. The Year 1 RA-O Report was approved in March 2019 and monitoring well 35BWW02 was removed from the monitoring program at that time.
- The list of MNA parameters was reduced after the Year 2 RA-O Quarter 2 sampling event. The revised list of parameters includes nitrate, sulfate, chloride, methane, ethane, ethene, carbon dioxide, and total organic carbon (TOC) analyzed in an off-site laboratory, and dissolved iron measured in the field (Bhate 2019b).

2.2.2 Groundwater Elevations and Flow Direction

Potentiometric surfaces drawn based on water level data collected in November 2020 and May 2021 are shown on **Figures 2-2** and **2-3**, respectively. The screened interval at 35BWW01 is located approximately 15 feet higher in elevation than other shallow wells and is not representative of the shallow groundwater. The groundwater at 35BWW01 may represent a perched zone; therefore, the elevations measured there were also not used to create the shallow groundwater potentiometric maps. Based on the gauging data from the Year 4 RA-O semiannual sampling events, groundwater within the site boundary flows primarily to the northeast from monitoring well 35BWW11 towards LHSMW58, 35BWW14, and 35BWW24. West of the site boundary, but within in the LUC boundary, the groundwater continues to flow north-northwest when the groundwater levels are higher, as observed in May 2021 and shown on **Figure 2-3**.

2.2.3 Groundwater Analytical Results

During the Year 4 RA-O, groundwater samples were collected from 22 monitoring wells and analyzed for VOCs according to SW-846 Method 8260. Samples from six monitoring wells were analyzed for MNA geochemical parameters as shown in **Table 2-1**.

During the Year 4 RA-O sampling events, monitoring wells 35BWW04, 35BWW05, 35BWW09, 35BWW14, 35BWW15, 35BWW16, 35BWW20, 35BWW25, and LHSMW58 contained VOCs above their respective MCLs. This is the first year of RA-O where no VOCs have been above their respective MCLs at 35BWW12. The highest levels of VOCs have historically been observed at 35BWW09; however, levels of PCE and TCE have been decreasing at this well. During the Year 4 RA-O, the highest levels of VOCs were observed at 35BWW14, with PCE at 27 µg/L and TCE at 6.9 µg/L in May 2021. Analytical results for

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Year 4 RA-O sampling activities are presented in **Table 2-3**. Historical COC results are presented in **Table 2-4**. **Figures 2-4** through **2-6** depict the VOC data in wells sampled in October 2013, November 2020, and May 2021, respectively. The trends of COC concentrations in monitoring wells with COC concentrations greater than the MCL are depicted in graphs presented on **Figure 2-7a** and **2-7b**. An expanded discussion on the VOCs and their distribution, including trend analysis is included in **Section 3.1**.

Groundwater monitoring well sample collection logs (SCLs) were completed for each monitoring well sampled and are included in **Appendix B**. The SCLs for the November 2020 and May 2021 sampling event have been revised to correct the screen interval and units at two wells, 35BWW11 and 35BWW23. A Memorandum for Record has been prepared to address the issues identified with the database and the revision of previous SCLs (Bhate 2021). The database was updated in January 2020 using original well installation forms and survey data. Laboratory analytical results are included in **Appendix C**.

2.3 Surface Water Sampling

As per the RACR, sampling of surface water from two locations, 35BSW01 and 35BSW02, in Goose Prairie Creek was conducted quarterly for the first year and then annually during the second and third years. Annual sampling at these locations will continue until the first CERCLA Five-Year Review. However, if the groundwater elevation is lower than the creek bottom elevation during any sampling event, then a surface water sample will not be collected. To determine if groundwater contamination may be contributing to the surface water during the Year 4 RA-O, the groundwater elevations at 35BWW05 and 35BWW12 were compared to the creek bottom elevations at 35BSW01 and 35BSW02, respectively. At monitoring well 35BWW01, groundwater elevations were observed above the creek bottom in November 2020 and could influence the creek. Comparison to other wells suggests this water may be perched and could potentially influence the creek. At this well, COCs continue to be below the detection limit; therefore, if the perched water influences the creek, the creek would not be impacted by COCs.

During the Year 4 sampling event, the groundwater elevation measured at 35BWW05 was 179.67 feet above mean sea level (MSL) in November 2020 and 182.64 feet above MSL in May 2021, which is below the creek bottom elevation of 191.49 feet above MSL at 35BSW01. The groundwater elevation at 35BWW12 was 180.17 feet above MSL in November 2020 and 183.85 feet above MSL in May 2021, also below the creek bottom elevation of 189.16 feet above MSL at 35BSW02. The groundwater elevations at the two monitoring wells were below those of the creek bottom elevations during each sampling event; therefore, surface water samples were not collected. **Figure 2-1** depicts the locations of the surface water sampling locations and the wells used for groundwater elevation comparison.

2.4 Groundwater Monitoring System Maintenance

Inspections of the conditions/integrity of monitoring wells were conducted during each sampling event, and the information was recorded on the well inspection forms. **Appendix D** includes a photo log and well inspection forms completed for each sampling event which show the condition of the wells. During the Year 4 RA-O reporting period, damage to well bollards was reported at 35BWW04 was reported on the SCL. No damage to pads or protective well casings was observed. Maintenance, such as painting and replacement of well labels, is required at three wells and will be conducted during the Year 5 RA-O. Also, only minimal encroachment of weeds or brush on the well pads was observed. Mowing the area to control brush and weeds is conducted to allow access to the wells and was performed at LHAAP-35B (37) on October 27, 2020 and May 10, 2021. **Table 2-5** provides a summary of the maintenance activities that were performed at the site during the fourth annual RA-O period.

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3.0 NATURAL ATTENUATION EVALUATION

This chapter presents the results of the natural attenuation evaluation in accordance with the three lines of evidence discussed in the Final RACR for site COCs (AECOM 2016).

3.1 First Line of Evidence: Change in COC Concentrations

Natural attenuation is the combination of multiple mechanisms, including biodegradation, volatilization, dilution, advection, and absorption, that reduce contaminant concentrations. The decrease of COC concentrations over time and distance is evidence of natural attenuation, though the observed decrease may be influenced by potentially short-term fluctuations in groundwater elevations. The change in groundwater COC concentrations over time and with distance was evaluated at LHAAP-35B (37). COC concentrations for the fourth year of RA-O sampling events are provided on **Figures 2-5** and **2-6** as well as in **Tables 2-3** and **2-4**. COCs exceeding their respective MCLs are highlighted. To aid in evaluating COCs, concentrations are graphed over time on **Figures 2-7a** and **2-7b**.

3.1.1 In Well COC Concentrations

In the 2016 RACR, six wells were discussed as the primary focus of analysis due to high COC concentrations: 35BWW04, 35BWW05, 35BWW08, 35BWW10, 35BWW14, and 35BWW15. During the Year 4 sampling events, all the COCs continue to be below the MCLs at 35BWW08 and 35BWW10. Since 2016, additional wells have been sampled and elevated levels have also been observed in 35BWW09, 35BWW12, 35BWW16, 35BWW20, 35BWW25, and LHSMW58. However, at 35WW12, all VOCs were below their respective MCLs during both sampling events for Year 4 RA-O, which is the first time since 2018. During the Year 4 sampling events, the highest concentrations were detected in 35BWW14.

At 35BWW04, PCE was detected at 66.5 µg/L and TCE was detected at 11.4 µg/L during the 2013 baseline sampling event. Since the baseline sampling, the only COC above the MCL has been PCE and concentrations have fluctuated near the MCL of 5 µg/L. PCE was detected at 5.2 and 6.8 µg/L in November 2020 and May 2021, respectively.

At 35BWW05, TCE was detected at 14 µg/L during the 2013 baseline sampling and has remained above the MCL, fluctuating between 5.5 and 12 µg/L. In November 2020, TCE was detected at 5.5 µg/L, and in May 2021, TCE increased slightly to 6.3 µg/L. All of the other COCs at 35BWW05 remained below their respective MCL levels during the Year 4 sampling events.

At 35BWW08, TCE was detected at 150 µg/L in 2007, and the concentration declined to 43.8 µg/L in the 2013 baseline event. PCE and TCE concentrations have been below their

respective detection limits since February 2018 and remained below these levels during the Year 4 RA-O.

At 35BWW09, TCE has continued to decrease since the highest level observed in this well at 580 µg/L in November 2018. During the Year 4 RA-O sampling, TCE concentrations decreased from 42 µg/L in May 2020 to 23 and 13 µg/L in November 2020 and May 2021, respectively. Although the groundwater elevation has been fluctuating since 2019, the overall increasing trend in groundwater elevations may be responsible for the decreasing TCE levels observed.

At 35BWW10, PCE and TCE concentrations have continued to decrease during the Year 4 RA-O and have remained below their respective MCLs. These data indicate that the decreasing trends continue into the Year 4 RA-O period, and future data will determine whether levels remain below the MCLs.

At 35BWW12, PCE concentrations have fluctuated from 15.3 µg/L during the baseline sampling in 2013, down to 4.8 µg/L in November 2017, up to 8.5 µg/L in May 2020, and back down to 3.4 in May 2021. During the Year 4 RA-O sampling event, PCE has remained below the MCL of 5 µg/L at 3.1 and 3.4 µg/L between November 2020 and May 2021.

At 35BWW14, PCE has fluctuated from the 19 µg/L detected during the baseline sampling in 2013. During the Year 4 RA-O, PCE concentrations have decreased from 40 µg/L detected in the May 2020 (Year 3 RA-O) sampling event, to 23 and 27 µg/L in November 2020 and May 2021, respectively. TCE concentrations have also decreased since baseline in 2013 from 82.8 µg/L to the lowest levels observed at this well. During the Year 4 RA-O TCE concentrations were observed at 7.7 µg/L in November 2020 and 6.9 µg/L in May 2021, as seen on **Figure 2-7a**. Also, low levels of the degradation products cis-1,2-DCE and 1,1-DCE continue to be observed during the Year 4 RA-O sampling, indicating that limited reductive dechlorination is occurring at the location.

During the Year 4 RA-O sampling at 35BWW15, PCE concentrations have remained consistent between the 2017 (12 µg/L) and May 2021 levels (14 µg/L). TCE has decreased overall from 15 to 6.2 µg/L between the baseline in 2013 and 2021. Most recently, TCE has decreased to the lowest levels observed in this well at 5.4 and 6.2 µg/L during the Year 4 RA-O sampling events.

At 35BWW16, PCE concentrations have fluctuated since 2016 from 5.13 µg/L detected in in August 2016 to 6.0 µg/L in May 2021. During the Year 4 RA-O sampling events, PCE decreased to below the MCL of 5.0 µg/L for the first time since 2016 in November 2020, and then increased slightly to 6.0 µg/L in May 2021.

At 35BWW20, PCE concentrations have decreased from the highest level of 34 µg/L in February 2019 to the lowest level in this well at 6.1 µg/L in May 2021. The lowest level of PCE observed in May 2021 also coincided with the highest groundwater level, representing a 3.2-foot increase in groundwater elevation between November 2020 and May 2021.

The concentration of TCE in groundwater at the downgradient well 35BWW25 has a somewhat inverse correlation with groundwater elevations. TCE levels have increased when water levels are low and are lower when the water levels are high. Overall, a small increase has been observed since 2016, from 5.55 µg/L in August 2016 to 10 and 8.5 µg/L in November 2020 and May 2021, respectively.

At LHSMW58, PCE concentrations have fluctuated from the high of 20.3 µg/L detected in the baseline sampling event in October 2013 to 4.2 µg/L during the Year 3 RA-O sampling in November 2019. During the Year 4 RA-O, PCE has increased from 9.5 to 19 µg/L between November 2020 and May 2021.

3.1.2 COC Concentrations Based on Groundwater Flow

Based on the general direction of groundwater flow, monitoring well 35BWW11 is a consistent upgradient background monitoring well, and monitoring wells 35BWW23 and 35BWW24 are downgradient monitoring wells. Site COCs have not been observed above the MCL in these wells and they aid in delineating the plume configuration. Within the site boundary, the groundwater flows primarily to the northeast from monitoring well 35BWW11 towards LHSMW58, 35BWW14, and 35BWW24. During times of higher water elevations, often in the spring during the May sampling events, groundwater in the area near the west of the site boundary, but within the LUC boundary flows north-northwest, as observed in May 2021 and shown on **Figure 2-3**. At LHAAP-35B (37), contaminant concentrations decrease significantly as groundwater moves downgradient from the wells with the highest contaminant levels. In May 2021, PCE and TCE concentrations decreased from 27 and 6.9 µg/L, respectively, at 35BWW14 to below the MCL at 35BWW24. Although groundwater flow contours do not show groundwater migrating directly from 35BWW09 or 35BWW14 to 35BWW25, it is the most impacted downgradient well (**Figure 2-6**). A decrease in TCE was observed between the upgradient wells 35BWW09 and 35BWW014 and the downgradient well 35BWW25, suggesting that concentrations are decreasing with distance from the area of the highest concentration. On the west side of the site near the LUC boundary, in November 2020 TCE at 35BWW09 was observed at 23 µg/L and decreased to below the detection limit at 35BWW08. In May 2021, when groundwater on this west side was flowing more westerly, TCE concentrations also decreased from 13 µg/L to below the detection limits between 35BWW09 and 35BWW18.

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3.1.3 Mann-Kendall Analysis

Mann-Kendall analysis for the Year 4 RA-O monitoring period was completed for PCE and TCE. A summary table of the Mann-Kendall results is presented in **Table 3-1**. The results are presented in **Appendix E** in graphical format with the statistical results presented on the bottom of the page. The GSI Mann-Kendall Tool Kit was used for this analysis. The concentrations of COCs are presented in µg/L. Half the reporting limit was used for samples with no detected concentration. For locations with duplicate samples, the regular sample was used. The level of statistical significance is calculated for each analysis and provided on the trend analysis sheet. It should be noted that the trends identified in the Mann-Kendall analysis may have been influenced by groundwater elevation increases during Year 4. During the Year 3 RA-O, the only well where the trend was possibly increasing was at 35BWW16; however, the concentrations observed during the Year 4 sampling changed the trend to stable in the Year 4 analysis. Therefore, no concentration trends at LHAAP-37 during the Year 4 RA-O are increasing for the first time since baseline sampling. Future RA-O sampling will determine if these trends persist.

Significant Decreases

During the Year 4 RA-O, the number of wells with statistically significantly decreasing trends increased from four in Year 3 to five; the number of wells in both cases exceeds the number of wells at which a significant decreasing trend was observed during the Year 2 RA-O (one). Mann-Kendall analysis identified statistically significant evidence of decreasing trends at the following:

- **Monitoring Well 35BWW05 – TCE.** The TCE trend at this well has changed from stable in the Year 2 RA-O to probably decreasing in Year 3 to decreasing in Year 4. Concentrations of TCE have decreased from 14 µg/L in October 2013 to 6.3 µg/L in May 2021. An overall decreasing trend has been seen at this location and may be the result of natural attenuation (e.g., dilution from clean upgradient groundwater). Results from future sampling events will continue to be evaluated for COC concentration trends.

- **Monitoring Well 35BWW09 – TCE.** The TCE trend at this well has changed from stable in the Year 3 RA-O to decreasing in Year 4. Concentrations of TCE have decreased from 580 µg/L in November 2018 to 13 µg/L in May 2021. An overall decreasing trend has been seen at this location and may be the result of natural attenuation. Results from future sampling events will continue to be evaluated for COC concentration trends.

- **Monitoring Well 35BWW14 – TCE.** At this well, the trend has changed from probably decreasing in the Year 2 RA-O to a significant decrease in Year 3 RA-O, and this trend has continued during the Year 4 RA-O analysis. Concentrations of TCE have decreased since October 2013 to 6.9 µg/L in May 2021. An overall decreasing trend has been seen at this location and may be the result of natural attenuation (e.g., dilution from clean upgradient groundwater). Results from future sampling events will continue to be evaluated for COC concentration trends.

- **Monitoring Well 35BWW15 – TCE.** Concentrations of TCE have continued to decrease since 2014 to 6.2 µg/L in May 2021. The decreasing trends may be the result of natural attenuation (e.g., dilution from clean upgradient groundwater). Results from future sampling events will continue to be evaluated for COC concentration trends.

- **Monitoring Well 35BWW20 – PCE.** Concentrations of PCE have decreased from 34 µg/L in 2018 to its lowest level at 6.1 µg/L in May 2021. The decreasing trends may be the result of natural attenuation (e.g., dilution from clean upgradient groundwater). Results from future sampling events will continue to be evaluated for COC concentration trends.

Probably Decreasing

Mann-Kendall analysis identified the following statistically significant evidence of probable decreasing trends:

- **Monitoring Well LHSMW58 – PCE.** Concentrations of PCE have decreased from 20 µg/L in November 2017 to 4.2 µg/L in November 2019. During the Year 3 RA-O, an increase was observed in May 2020 to 14 µg/L. During the Year 4 RA-O sampling events PCE concentrations decreased to 9.5 µg/L in November 2020 and then increased to 19 µg/L in May 2021. In the Year 3 RA-O, a decreasing trend was observed, and due to the higher concentration in May 2021, the trend analysis has changed back to probably decreasing. Results from future sampling events will continue to be evaluated for COC concentration trends.

3.1.4 Predictive Modeling

Calculation of time-based attenuation rates was performed as required by the RAWP (AECOM 2013). However, the trends for monitoring wells at LHAAP-37 may be skewed by the seasonal fluctuations of groundwater being higher in May (spring) and lower during the

November (fall) sampling events. Therefore, although estimates of the time to achieve the MCL have been provided in the discussion below, the current trends may not accurately predict the future declines in COC concentrations.

As noted in **Section 3.1**, the Mann-Kendall analysis was used to determine that a statistically significant decrease in TCE concentrations over time was observed for the first time at monitoring well 35BWW05. To determine the estimated time to achieve the MCL at this well, a time-dependent attenuation rate was calculated and is provided in **Appendix F**. The first order rate constant is 0.0003 day^{-1} and the time to achieve the MCL of 5 µg/L is estimated to be 2.8 years.

A significant decreasing trend was determined by Mann-Kendall analysis at 35BWW09. A time-dependent attenuation rate was calculated to determine a time to achieve the MCL in the groundwater associated with this well and is provided in **Appendix F**. The first order rate constant for TCE at 35BWW09 was determined to be 0.0006 day^{-1} and the time to achieve the MCL of 5 µg/L is estimated to be 4.4 years.

A significant decreasing trend was determined by Mann-Kendall analysis at 35BWW14. A time-dependent attenuation rate was calculated to determine a time to achieve the MCL in the groundwater associated with this well and is provided in **Appendix F**. The first order rate constant for TCE at 35BWW14 was determined to be 0.0008 day^{-1} and the time to achieve the MCL of 5 µg/L is estimated to be 1.1 years.

A significant decreasing trend was determined by Mann-Kendall analysis at 35BWW15. A time-dependent attenuation rate was calculated to determine a time to achieve the MCL in the groundwater associated with this well and is provided in **Appendix F**. The first order rate constant for TCE at 35BWW14 was determined to be 0.0008 day^{-1} and the time to achieve the MCL of 5 µg/L is estimated to be 0.7 years.

A significant decreasing trend was determined by Mann-Kendall analysis at 35BWW20. A time-dependent attenuation rate was calculated to determine a time to achieve the MCL in the groundwater associated with this well and is provided in **Appendix F**. The first order rate constant for PCE at 35BWW20 was determined to be 0.0006 day^{-1} and the time to achieve the MCL of 5 µg/L is estimated to be 0.9 years.

The Mann-Kendall analysis determined that the trend has gone from significantly decreasing to probably decreasing at LHSMW58, as concentrations have increased slightly during the Year 4 RA-O. A time-dependent attenuation rate was calculated to determine a time to achieve the MCL in the groundwater associated with this well and is provided in **Appendix F**. The first order rate constant for PCE at LHSMW58 was determined to be 0.0003 day^{-1} and the time

to achieve the MCL of 5 µg/L has increased from an estimated time of 5.8 years to an estimated 12.2 years.

While these calculations provide an estimated time to achieve the MCL, given lithologic variability and significant seasonal groundwater elevation fluctuations at the site during Years 2, 3, and 4, the time necessary to achieve the MCL may vary by an order of magnitude or more. Additionally, the rate of reduction could diminish over time as the residual concentrations decrease, and the time frames to achieve the MCL may be longer than estimated by these calculations.

3.1.5 Plume Stability

COC plume maps have been completed for the two semi-annual RA-O sampling events and are presented on **Figures 2-5** and **2-6**. COC concentrations at perimeter wells 35BWW07, 35BWW08, 35BWW11, 35BWW18, 35BWW19, 35BWW23, 35BWW24, and 35BWW26 have remained below their respective MCLs during the Year 4 RA-O. Monitoring well 35BWW06 is screened in the shallow intermediate, and COCs have remained below the detection limits during the last time this well was sampled, in November 2018, which indicates that the contaminant plume is not migrating downward. As discussed above, 35BWW06 will be sampled once every five years to support the Five Year Reviews, and the next sampling event for this well will be in November 2021.

During the Year 4 RA-O, seasonal groundwater level fluctuations were observed as elevations decreased again in November 2020 and then increased in May 2021. The water level fluctuations may have aided in the increases and decreases in COC concentrations.

At the most northern impacted monitoring well, 35BWW25, TCE levels have decreased from the highest level observed, at 19 µg/L in November 2018 to 8.5 µg/L in May 2021. Concentrations continued to decrease from 10 µg/L to 8.5 µg/L between November 2020 and May 2021, indicating that the plume may be contracting to pre-2018 levels and is likely to be stable.

At 35BWW24, located to the northeast, TCE was observed for the first time during the Year 2, Quarter 1 sampling event in November 2018 at 2.9 µg/L, below the MCL of 5 µg/L. TCE continues to be observed and was detected at 1.7 and 2.4 µg/L during the Year 4 RA-O sampling events. TCE will continue to be evaluated further during the Year 5 RA-O to determine if the plume is migrating to the northeast.

At 35WW12, located on the south side of the plume, all VOCs were below their respective MCLs during both sampling events for Year 4 RA-O, which is the first time since 2018, suggesting that the plume may be contracting upgradient.

The PCE and TCE concentrations have also fluctuated in the southwest part of the plume. At 35BWW10, PCE and TCE have continued to be below their respective MCLs since August 2019.

At 35BWW09, TCE levels increased from 49 to 580 µg/L between the 2013 baseline and the November 2018 sampling event; however, concentrations have decreased since November 2018. During the Year 4 RA-O, TCE was detected at the lowest level observed at this well at 13 µg/L in May 2021. PCE concentrations were detected above the MCL at 41 µg/L in May 2019. The PCE concentration only exceeded the MCL during the May 2019 event and has continued to be below the detection limit during the Year 3 and 4 RA-O sampling events. These data suggest that the plume is not moving farther to the southeast.

3.2 Second Line of Evidence: Geochemical Indicators

Select monitoring wells were sampled for MNA parameters as shown in **Table 2-1**. **Table 2-3** includes the geochemical data used to determine if the site groundwater conditions are favorable for MNA biological degradation processes. The list of MNA parameters was reduced after the Year 2 RA-O Quarter 2 sampling event. The MNA parameters for LHAAP-35B (37) wells include nitrate, sulfate, chloride, methane, ethane, ethene, carbon dioxide, and TOC analyzed in an off-site laboratory, and dissolved iron measured in the field (Bhate 2019). The field parameters for LHAAP-35B (37) wells include dissolved oxygen (DO), oxidation-reduction potential (ORP), pH, conductivity, turbidity, and temperature.

Dissolved Oxygen

DO is the most thermodynamically favored electron acceptor used by microbes for biodegradation of organic carbon, whether natural or anthropogenic (USEPA 1998). Anaerobic bacteria, which are the primary microbes able to degrade the site COCs, may be inhibited at DO concentrations greater than 0.5 milligram per liter (mg/L). In monitoring wells where COCs are above the MCL, the DO concentrations ranged from 0.06 to 4.02 mg/L, with an average of 1.02 mg/L during the Year 4 RA-O. The low DO levels (<0.5 mg/L) observed in four of nine impacted wells (35BWW05, 35BWW09, 35BWW14, and 35BWW16) are favorable for reductive dechlorination. The nine wells with DO levels above 0.5 mg/L, primarily located near the edge of or outside of the combined PCE/TCE plume area indicate that the groundwater conditions within these areas may not be favorable for biological reductions.

Oxidation-Reduction Potential

The ORP levels indicate the oxidative or reductive potential in the aquifer and provide real-time data to determine if conditions are conducive for biodegradation. ORP values less

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than 50 millivolts (mV) indicate that the aquifer is reaching anaerobic conditions and are favorable for biological reductive dechlorination of chlorinated ethenes and ethanes (USEPA 1998). During the Year 4 RA-O monitoring, the ORP measurements ranged from 162 mV at 35BWW05 to 286 mV at 35BWW09. These measurements indicate oxidative conditions which are not favorable for reductive dechlorination.

Nitrate

After DO has been depleted by microbes in the treatment zone, nitrate may be used as an electron acceptor and is reduced to nitrite. Nitrate levels above 1.0 mg/L may compete with reductive dechlorination (USEPA 1998). The nitrate and nitrite concentrations continue to be below 1.0 mg/L during the Year 4 RA-O sampling, indicating that nitrate will not inhibit anaerobic degradation of site COCs.

Iron Reduction

After nitrate is utilized, iron (III) (ferric iron) is used as an electron acceptor during anaerobic biodegradation of organic carbon. During this process, iron (III) is reduced to iron (II) (ferrous iron), which is soluble in water, and the presence of ferrous iron can indicate reducing groundwater conditions. During the Year 4 RA-O, ferrous iron continues to be observed at each of the MNA monitoring wells, indicating that iron-reducing conditions exist in the site groundwater.

Sulfate

After DO, nitrate, and iron have been depleted in the groundwater, sulfate is used as an electron acceptor. Concentrations of sulfate greater than 20 mg/L may compete with reductive dechlorination of the site COCs. However, in many plumes with high concentrations of sulfate, reductive dechlorination still occurs (USEPA 1998). Sulfate was sampled in monitoring wells designated for MNA analysis during the Year 4 RA-O and ranged from 26.1 to 73.3 mg/L during the Year 4 RA-O sampling events. Sulfate levels are slightly elevated and may compete as an electron acceptor with site COCs.

Methane

Methanogenesis occurs in highly reducing conditions and generally occurs after oxygen, nitrate, iron, and sulfate have been depleted. Methane levels above 500 µg/L are considered indicative of methanogenic conditions (USEPA 1998). Methane concentrations were below the detection limit of 1.0 µg/L during the Year 4 RA-O in the two wells sampled for MNA parameters, 35BWW04 and 35BWW14, which suggests that methanogenic conditions are not present in the groundwater.

Total Organic Carbon

Regardless of the electron acceptor being used, organic carbon is a required source of reduced carbon and energy to sustain microbial activity. TOC is utilized as an energy and hydrogen source to support the reductive dechlorination of the chlorinated COCs. TOC concentrations greater than 20 mg/L are considered adequate to support microbial activity (USEPA 1998). TOC was less than 1.5 µg/L during the Year 4 RA-O sampling. This indicates that carbon concentrations in the groundwater are not supportive of reductive dechlorination.

pH

The pH of the groundwater has an effect on the activity of microbial populations. Microbes capable of degrading chlorinated aliphatic hydrocarbons generally prefer pH values from 6 to 8 standard units (SU) (USEPA 1998). The Shallow Zone groundwater pH during the Year 4 RA-O period ranged from 4.87 to 7.83 SU, with an average of value of 6.02 SU. The pH data indicate the groundwater is supportive of biological activity and reductive dechlorination in some locations.

Ethane and Ethene

Ethane and ethene are the two end products of the reductive dechlorination pathways for chlorinated ethanes and ethenes. During the Year 4 RA-O, ethene and ethane concentrations were below the laboratory reporting limits, indicating that complete reductive dechlorination is not occurring at LHAAP-35B (37).

Geochemical Indicator MNA Parameter Summary

The qualitative assessment indicates that geochemical indicators during the Year 4 RA-O period in the groundwater at LHAAP-35B (37) are the same as the Year 3 RA-O and that the current geochemical conditions are not favorable for MNA processes via biological reduction. The low DO levels at some wells, the nitrate/nitrite concentrations, the presence of ferrous iron, and an average pH level are within the range for dechlorinating bacteria. The presence of the biological degradation product cis-1,2-DCE and the abiotic degradation product 1,1-DCE suggest that limited biological degradation is occurring; however, the primary MNA processes reducing concentrations are abiotic.

3.3 Third Line of Evidence: Microbial Analysis

Dechlorinating bacteria, *Dehalococcoides sp.*, were not analyzed during the Year 4 RA-O sampling event due to the reduction of MNA parameters after the Year 2 RA-O Quarter 2

sampling event (Bhate 2019). During the last sampling event in February 2019, *Dehalococcoides sp.* concentrations were 2.3 cells per milliliter and lower, indicating that the number of the species required for complete reductive dechlorination is not present.

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4.0 SUMMARY AND CONCLUSIONS

The LUC for LHAAP-35B (37) is groundwater restriction, which prohibits water well installation for any purpose other than environmental monitoring and testing or the use of residential groundwater until COCs in the groundwater and soil allow unrestricted use and unlimited exposure. The annual LUC compliance inspection for the Year 4 RA-O was conducted on December 29, 2020. No noncompliance issues or concerns were identified during the annual inspection. No change in land use or groundwater use has occurred at the site during the Year 4 RA-O monitoring period. Inspections of the monitoring wells were conducted during each sampling event. Site monitoring wells were in good condition, and periodic clearing and mowing were conducted as needed. Continued maintenance, such as painting and replacing labels and bollards, is required and will be conducted during the Year 5 RA-O.

VOC data and geochemical indicators were collected over the course of the monitoring period to evaluate effectiveness of MNA as a site remedy. A tiered approach was used to evaluate the occurrence of natural attenuation in site groundwater. The first line of evidence evaluated reductions in COC concentrations. The second line of evidence evaluated geochemical indicators to aid in determining favorable groundwater conditions for COC degradation. The third line of evidence evaluates microbial populations in the aquifer and will be used again in the future, if the first two are not able to provide sufficient support of the MNA processes occurring at the site. Previous microbial data indicated that the reductive dechlorinating bacteria *Dehalococcoides sp.* are not present at levels expected to aid in biological degradation and were removed from the list of analysis as part of the reduction of MNA parameters after the Year 2 RA-O Quarter 2 sampling event. (Bhate 2019).

Groundwater elevations were compared to creek bottom elevations to determine if groundwater could impact the creek. Monitoring well 35BWW01 continues to be the only well that has groundwater elevations above the creek bottom. Comparison to other wells suggests that the water in 35BWW01 may be perched and could potentially influence the creek. The lack of COCs present at this well suggests that if this water does reach the creek, the creek will not be impacted by COCs. Groundwater elevations at 35BWW05 and 35BWW12 were below the creek elevation at 35BSW01 and 35BSW02, indicating that shallow groundwater is not influencing the creek and therefore samples were not collected during the Year 4 RA-O. The most recent sampling at the two surface water locations was conducted in in May 2020 and no VOCs were detected at concentrations exceeding the laboratory reporting limits. In accordance with the RAWP, these locations will not be sampled in the future unless the groundwater elevations are above the creek bottom elevations.

An assessment of the first line of evidence included an evaluation of the groundwater flow and COC degradation trends. Based on the Year 4 RA-O groundwater level measurements, the groundwater primarily flows to the northeast. On the west side of the site, within the LUC boundary, the groundwater flows in a north-northwest direction, primarily during the spring (May) sampling event, when the groundwater elevations are higher.

Reductions in COCs were observed over time during the Year 4 RA-O. The highest levels of VOCs have historically been observed at 35BWW09; however, levels of PCE and TCE have been decreasing at this well. During the Year 4 RA-O, the highest levels of VOCs were observed at 35BWW14, with PCE at 27 µg/L and TCE at 6.9 µg/L in May 2021. At 35BWW10, PCE and TCE decreased to below the MCL in August 2019 and have remained below the MCLs during the Year 4 RA-O monitoring. At 35WW12, all COCs decreased to below their respective MCLs in November 2020 for the first time since November 2017 and remained at these low levels in May 2021.

During the Year 2 RA-O, an inverse relationship between groundwater elevations and COC concentrations was observed at some wells; however, this trend was not observed to the same extent during the Year 3 or Year 4 RA-O. During the Year 4 RA-O, Mann-Kendal analysis was conducted to evaluate contaminant trends. A significant decreasing trend was observed at five wells, compared to only one in the Year 2 RA-O. The increases in groundwater elevations in the last two years and the seasonal fluctuations may have affected the observed trends in the COC concentration. The MNA mechanism of dilution is expected to continue aiding in the decreases in COC levels, and future sampling events will determine if the downward trends persist.

TCE, cis-1,2-DCE, and VC concentrations at 35BWW14 and 35BWW15, near the center of the plume, have been declining over the first four Years of RA-O; however, PCE concentrations have also increased slightly in both wells as compared to the 2013 baseline concentration. While the concentrations in 35BWW14 and 35BWW15 continue to show declining trends of some COCs during the Year 4 RA-O period, the results do not conclusively indicate that MNA is operating successfully. The results from the ongoing RA-O monitoring will determine if the trends observed continue.

Decreases in contaminants were also observed along the flowpath. Elevated levels of PCE and TCE concentrations decreased between the locations of 35BWW14 and 35BWW24. On the west side, near the LUC boundary, a decrease in TCE was also observed from elevated levels at 35BWW09 to below the detection limit at 35BWW08. In May 2020, when groundwater on the west side flowed northwesterly, the concentrations also decreased between 35BWW09 and 35BWW18.

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The PCE concentrations at 35BWW16, located northeast of the main plume, increased from below the MCL (0.447 J µg/L) during the 2013 baseline sampling to a high of 15 µg/L in November 2018. However, PCE concentrations decreased to 9.8 µg/L during the Year 2 RA-O in August 2019, remained stable until a decrease was observed during the Year 4 RA-O to 4.4 µg/L (below the MCL) in November 2020, and then increased slightly to 6 µg/L in May 2021. This well is located northeast of the main plume, and in previous years was located downgradient of the higher concentration areas of the plume. It is possible that the more northerly flow observed in the area of this well during the Year 2, 3, and 4 RA-O events may have prevented further plume migration towards this well, or the PCE concentrations may have been influenced by the significant changes in groundwater elevation. Continued RA-O monitoring events will determine if plume migration towards this well continues in the future.

The COC data from the RA-O monitoring indicate that the plume has been relatively stable during the first four years of RA-O sampling. At 35BWW25, located on the northern side of the plume, TCE concentrations increased from 2016 to November 2018; however, they have decreased slightly and remained stable since February 2019, including the Year 4 RA-O sampling events. TCE was observed for the first time at 35BWW24 in November 2018 and has remained below MCL during the Year 2, 3, and 4 RA-O events, suggesting the plume is stable to the northeast. At 35WW12, located on the south side of the plume, all VOCs were below their respective MCLs during both sampling events for Year 4 RA-O, which is the first time since 2018, suggesting that the plume may be contracting upgradient. The PCE and TCE concentrations have also fluctuated in the southwestern part of the plume. At 35BWW10, concentrations of PCE and TCE decreased to below their respective MCLs during the Year 2 RA-O and have remained below the MCL during the Year 4 RA-O. At 35BWW09, PCE increased above the MCL in one sampling event during the Year 2 RA-O but has remained below the MCL during the Year 3 and 4 RA-O. During the Year 3 RA-O, TCE levels decreased to baseline levels and these trends have continued during the Year 4 RA-O, indicating the plume is stable to the southwest. These changes will continue be evaluated during the Year 5 RA-O to determine if the plume continues to be stable.

The qualitative assessment of geochemical indicators performed as the second line of evidence at LHAAP-35B (37) indicates current geochemical conditions are not optimal for biological degradation MNA processes. Although degradation products cis-1,2-DCE and 1,1-DCE have been detected in certain monitoring wells, groundwater conditions within the impacted area are not highly reducing, which is not favorable for biological degradation of site COCs and suggest that reductions in concentrations are due to abiotic MNA processes.

The third line of evidence to assess MNA is to evaluate microorganisms that demonstrate biological degradation. Prior to the acceptance of the updated MNA analysis,

Dehalococcoides sp. was sampled during the Year 2 RA-O and levels were not favorable for reductive dechlorination.

The evaluation of MNA at LHAAP-35B (37) indicates that, based on the data collected thus far, decreases observed in COCs are primarily due to MNA abiotic processes, including dispersion, dilution, sorption, and volatilization. The data also indicated that decreases in COCs are not likely to be associated with biodegradation. Increases in groundwater elevations during the Year 2 groundwater sampling and continued fluctuations in Year 4 may have potentially affected the observed trends in the COC concentration data. Four years of MNA data for these wells have been collected during a period with significant groundwater elevation fluctuations in Year 2, 3, and 4, and future sampling events will determine if the COC trends continue. Semiannual sampling will be implemented for the fifth year of RA-O monitoring in compliance with the RACR (AECOM 2016).

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Tables

Table 2-1
Groundwater RA-O Sampling – 2020 and 2021

Well ID	Groundwater Unit	Y4SA1 November 2020			Y4SA2 May 2021		
		VOC	Field Parameters	MNA	VOC	Field Parameters	MNA
35BWW01	Shallow	X	X		X	X	
35BWW02	Shallow	Removed from sampling schedule [a]					
35BWW03	Intermediate	Location is sampled for 5 year review - Next sampling will be Y5Q1 November 2021					
35BWW04	Shallow	X	X	X	X	X	X
35BWW05	Shallow	X	X		X	X	
35BWW06	Lower Shallow	Location is sampled for 5 year review - Next sampling will be Y5Q1 November 2021					
35BWW07	Shallow	X	X		X	X	
35BWW08	Shallow	X	X	X	X	X	X
35BWW09	Shallow	X	X		X	X	
35BWW10	Shallow	X	X		X	X	
35BWW11	Shallow	X	X		X	X	
35BWW12	Shallow	X	X	X	X	X	X
35BWW13	Shallow	X	X		X	X	
35BWW14	Shallow	X	X	X	X	X	X
35BWW15	Shallow	X	X		X	X	
35BWW16	Shallow	X	X		X	X	
35BWW17	Shallow	X	X		X	X	
35BWW18	Shallow	X	X		X	X	
35BWW19	Shallow	X	X		X	X	
35BWW20	Shallow	X	X		X	X	
35BWW23	Shallow	X	X	X	X	X	X
35BWW24	Shallow	X	X		X	X	
35BWW25	Shallow	X	X		X	X	
35BWW26	Shallow	X	X	X	X	X	X
LHSMW58	Shallow	X	X		X	X	
35BSW01	Goose Prairie Creek				X	X	
35BSW02	Goose Prairie Creek				X	X	

Notes:

Field parameters to be monitored for all wells: pH, temperature, conductivity, turbidity, oxidation-reduction potential (ORP), dissolved oxygen (DO), and ferric iron. MNA parameters include alkalinity, sulfate, sulfide, chloride, TOC, dissolved iron and manganese, total phosphorus, carbon dioxide, dissolved gases (methane, ethane, ethene) and total iron.

[a] Location was removed from sampling list due to being dry during each quarter of Year 1 RA-O groundwater sampling and the first two quarters of Year 2 RA-O.

X - well was analyzed for that parameter.

ID - identifier

MNA - monitored natural attenuation

NS - not sampled

RA-O - remedial action operation

TOC - total organic carbon

VOC - volatile organic compound

Table 2-2
Groundwater Elevation Data, LHAAP-35B (37)

Well ID	Sampling Date	TOC Elevation (ft MSL)	Ground Surface Elevation (ft MSL)	Depth to Water (ft TOC)	Depth to Water (ft bgs)	Screen Interval (ft bgs)		Screen Interval (ft MSL)		Water Elevation (ft MSL)
						Top	Bottom	Top	Bottom	
35BWW01	1/1/2013	202.42	200.31	Dry	Dry	9	19	191.31	181.31	Dry
	8/18/2016	202.42	200.31	17.00	14.89	9	19	191.31	181.31	185.42
	11/8/2017	202.42	200.31	15.42	13.31	9	19	191.31	181.31	187.00
	2/14/2018	202.42	200.31	14.80	12.69	9	19	191.31	181.31	187.62
	3/29/2018	202.42	200.31	12.94	10.83	9	19	191.31	181.31	189.48
	5/24/2018	202.42	200.31	12.28	10.17	9	19	191.31	181.31	190.14
	8/16/2018	202.42	200.31	14.22	12.11	9	19	191.31	181.31	188.20
	11/15/2018	202.42	200.31	14.15	12.04	9	19	191.31	181.31	188.27
	2/12/2019	202.42	200.31	8.11	6.00	9	19	191.31	181.31	194.31
	5/20/2019	202.42	200.31	7.18	5.07	9	19	191.31	181.31	195.24
	8/5/2019	202.42	200.31	11.93	9.82	9	19	191.31	181.31	190.49
	11/21/2019	202.42	200.31	14.35	12.24	9	19	191.31	181.31	188.07
	5/6/2020	202.42	200.31	8.28	6.17	9	19	191.31	181.31	194.14
	11/9/2020	202.42	200.31	14.18	12.07	9	19	191.31	181.31	188.24
	5/13/2021	202.42	200.31	6.97	4.86	9	19	191.31	181.31	195.45
35BWW02	1/1/2013	203.95	201.54	Dry	Dry	9	14	192.54	187.54	Dry
	8/19/2016	203.95	201.54	Dry	Dry	9	14	192.54	187.54	Dry
	11/7/2017	203.95	201.54	Dry	Dry	9	14	192.54	187.54	Dry
	2/13/2018	203.95	201.54	Dry	Dry	9	14	192.54	187.54	Dry
	3/28/2018	203.95	201.54	Dry	Dry	9	14	192.54	187.54	Dry
	5/24/2018	203.95	201.54	Dry	Dry	9	14	192.54	187.54	Dry
	11/16/2018	203.95	201.54	Dry	Dry	9	14	192.54	187.54	Dry
	2/14/2019	203.95	201.54	Dry	Dry	9	14	192.54	187.54	Dry
35BWW04	1/1/2013	202.11	199.26	23.50	20.65	20	30	179.26	169.26	178.61
	8/17/2016	202.11	199.26	22.00	19.15	20	30	179.26	169.26	180.11
	11/9/2017	202.11	199.26	23.80	20.95	20	30	179.26	169.26	178.31
	2/14/2018	202.11	199.26	23.53	20.68	20	30	179.26	169.26	178.58
	5/22/2018	202.11	199.26	22.55	19.70	20	30	179.26	169.26	179.56
	8/22/2018	202.11	199.26	24.09	21.24	20	30	179.26	169.26	178.02
	11/20/2018	202.11	199.26	23.02	20.17	20	30	179.26	169.26	179.09
	2/13/2019	202.11	199.26	21.75	18.90	20	30	179.26	169.26	180.36
	5/20/2019	202.11	199.26	19.07	16.22	20	30	179.26	169.26	183.04
	8/5/2019	202.11	199.26	20.78	17.93	20	30	179.26	169.26	181.33
	11/21/2019	202.11	199.26	22.95	20.10	20	30	179.26	169.26	179.16
	5/6/2020	202.11	199.26	20.59	17.74	20	30	179.26	169.26	181.52
	11/10/2020	202.11	199.26	22.08	19.23	20	30	179.26	169.26	180.03
	5/13/2021	202.11	199.26	18.54	15.69	20	30	179.26	169.26	183.57
35BWW05	1/1/2013	202.57	199.97	24.08	21.48	26	36	173.97	163.97	178.49
	8/18/2016	202.57	199.97	22.65	20.05	26	36	173.97	163.97	179.92
	11/8/2017	202.57	199.97	24.30	21.70	26	36	173.97	163.97	178.27
	2/16/2018	202.57	199.97	24.00	21.40	26	36	173.97	163.97	178.57
	3/27/2018	202.57	199.97	23.35	20.75	26	36	173.97	163.97	179.22
	5/21/2018	202.57	199.97	23.20	20.60	26	36	173.97	163.97	179.37
	8/21/2018	202.57	199.97	24.63	22.03	26	36	173.97	163.97	177.94
	11/18/2018	202.57	199.97	23.59	20.99	26	36	173.97	163.97	178.98
	2/13/2019	202.57	199.97	22.57	19.97	26	36	173.97	163.97	180.00
	5/21/2019	202.57	199.97	20.47	17.87	26	36	173.97	163.97	182.10
	8/6/2019	202.57	199.97	21.83	19.23	26	36	173.97	163.97	180.74
	11/25/2019	202.57	199.97	23.60	21.00	26	36	173.97	163.97	178.97
	5/6/2020	202.57	199.97	21.61	19.01	26	36	173.97	163.97	180.96
	11/9/2020	202.57	199.97	22.90	20.30	26	36	173.97	163.97	179.67
	5/13/2021	202.57	199.97	19.93	17.33	26	36	173.97	163.97	182.64

Table 2-2
Groundwater Elevation Data, LHAAP-35B (37)

Well ID	Sampling Date	TOC Elevation (ft MSL)	Ground Surface Elevation (ft MSL)	Depth to Water (ft TOC)	Depth to Water (ft bgs)	Screen Interval (ft bgs)		Screen Interval (ft MSL)		Water Elevation (ft MSL)
						Top	Bottom	Top	Bottom	
35BWW06	1/1/2013	203.04	200.01	24.70	21.67	42	52	158.01	148.01	178.34
	8/18/2016	203.04	200.01	23.27	20.24	42	52	158.01	148.01	179.77
	11/8/2017	203.04	200.01	24.50	21.47	42	52	158.01	148.01	178.54
	2/16/2018	203.04	200.01	24.70	21.67	42	52	158.01	148.01	178.34
	3/27/2018	203.04	200.01	24.80	21.77	42	52	158.01	148.01	178.24
	5/21/2018	203.04	200.01	24.02	20.99	42	52	158.01	148.01	179.02
	8/21/2018	203.04	200.01	25.30	22.27	42	52	158.01	148.01	177.74
	11/18/2018	203.04	200.01	24.34	21.31	42	52	158.01	148.01	178.70
35BWW07	1/1/2013	203.53	200.86	27.85	25.18	18	28	182.86	172.86	175.68
	8/18/2016	203.53	200.86	25.50	22.83	18	28	182.86	172.86	178.03
	11/8/2017	203.53	200.86	27.94	25.27	18	28	182.86	172.86	175.59
	2/13/2018	203.53	200.86	27.25	24.58	18	28	182.86	172.86	176.28
	3/29/2018	203.53	200.86	26.52	23.85	18	28	182.86	172.86	177.01
	5/23/2018	203.53	200.86	26.11	23.44	18	28	182.86	172.86	177.42
	8/20/2018	203.53	200.86	28.05	25.38	18	28	182.86	172.86	175.48
	11/18/2018	203.53	200.86	27.45	24.78	18	28	182.86	172.86	176.08
	2/14/2019	203.53	200.86	25.76	23.09	18	28	182.86	172.86	177.77
	5/22/2019	203.53	200.86	25.11	22.44	18	28	182.86	172.86	178.42
	8/5/2019	203.53	200.86	23.90	21.23	18	28	182.86	172.86	179.63
	11/25/2019	203.53	200.86	25.97	23.30	18	28	182.86	172.86	177.56
	5/11/2020	203.53	200.86	23.95	21.28	18	28	182.86	172.86	179.58
	11/11/2020	203.53	200.86	25.20	22.53	18	28	182.86	172.86	178.33
	5/17/2021	203.53	200.86	22.73	20.06	18	28	182.86	172.86	180.80
35BWW08	1/1/2013	204.12	201.4	25.10	22.38	22	32	179.4	169.4	179.02
	8/17/2016	204.12	201.4	23.74	21.02	22	32	179.4	169.4	180.38
	11/7/2017	204.12	201.4	25.40	22.68	22	32	179.4	169.4	178.72
	2/14/2018	204.12	201.4	25.07	22.35	22	32	179.4	169.4	179.05
	5/23/2018	204.12	201.4	24.43	21.71	22	32	179.4	169.4	179.69
	8/22/2018	204.12	201.4	25.73	23.01	22	32	179.4	169.4	178.39
	11/20/2018	204.12	201.4	24.54	21.82	22	32	179.4	169.4	179.58
	2/12/2019	204.12	201.4	23.67	20.95	22	32	179.4	169.4	180.45
	5/20/2019	204.12	201.4	21.40	18.68	22	32	179.4	169.4	182.72
	8/5/2019	204.12	201.4	20.50	17.78	22	32	179.4	169.4	183.62
	11/21/2019	204.12	201.4	24.75	22.03	22	32	179.4	169.4	179.37
	5/6/2020	204.12	201.4	22.63	19.91	22	32	179.4	169.4	181.49
	11/11/2020	204.12	201.4	24.10	21.38	22	32	179.4	169.4	180.02
	5/13/2021	204.12	201.4	20.95	18.23	22	32	179.4	169.4	183.17
35BWW09	1/1/2013	205.16	203.15	26.40	24.39	25	35	178.15	168.15	178.76
	8/16/2016	205.16	203.15	24.85	22.84	25	35	178.15	168.15	180.31
	11/7/2017	205.16	203.15	26.45	24.44	25	35	178.15	168.15	178.71
	2/16/2018	205.16	203.15	26.43	24.42	25	35	178.15	168.15	178.73
	3/27/2018	205.16	203.15	25.57	23.56	25	35	178.15	168.15	179.59
	5/21/2018	205.16	203.15	25.50	23.49	25	35	178.15	168.15	179.66
	8/16/2018	205.16	203.15	26.71	24.70	25	35	178.15	168.15	178.45
	11/19/2018	205.16	203.15	25.73	23.72	25	35	178.15	168.15	179.43
	2/13/2019	205.16	203.15	24.77	22.76	25	35	178.15	168.15	180.39
	5/21/2019	205.16	203.15	22.82	20.81	25	35	178.15	168.15	182.34
	8/5/2019	205.16	203.15	23.95	21.94	25	35	178.15	168.15	181.21
	11/26/2019	205.16	203.15	25.83	23.82	25	35	178.15	168.15	179.33
	5/11/2020	205.16	203.15	23.63	21.62	25	35	178.15	168.15	181.53
	11/9/2020	205.16	203.15	25.17	23.16	25	35	178.15	168.15	179.99
	5/17/2021	205.16	203.15	22.25	20.24	25	35	178.15	168.15	182.91
35BWW10	1/1/2013	203.79	200.79	24.97	21.97	18.23	33	182.56	167.79	178.82
	8/18/2016	203.79	200.79	23.47	20.47	18.23	33	182.56	167.79	180.32
	11/7/2017	203.79	200.79	25.50	22.50	18.23	33	182.56	167.79	178.29
	2/16/2018	203.79	200.79	24.87	21.87	18.23	33	182.56	167.79	178.92
	3/27/2018	203.79	200.79	24.21	21.21	18.23	33	182.56	167.79	179.58
	5/24/2018	203.79	200.79	24.17	21.17	18.23	33	182.56	167.79	179.62
	8/17/2018	203.79	200.79	25.43	22.43	18.23	33	182.56	167.79	178.36

Table 2-2
Groundwater Elevation Data, LHAAP-35B (37)

Well ID	Sampling Date	TOC Elevation (ft MSL)	Ground Surface Elevation (ft MSL)	Depth to Water (ft TOC)	Depth to Water (ft bgs)	Screen Interval (ft bgs)		Screen Interval (ft MSL)		Water Elevation (ft MSL)
						Top	Bottom	Top	Bottom	
35BWW10	11/18/2018	203.79	200.79	24.34	21.34	18.23	33	182.56	167.79	179.45
	2/12/2019	203.79	200.79	23.31	20.31	18.23	33	182.56	167.79	180.48
	5/20/2019	203.79	200.79	21.02	18.02	18.23	33	182.56	167.79	182.77
	8/6/2019	203.79	200.79	22.68	19.68	18.23	33	182.56	167.79	181.11
	11/26/2019	203.79	200.79	24.45	21.45	18.23	33	182.56	167.79	179.34
	5/6/2020	203.79	200.79	22.30	19.30	18.23	33	182.56	167.79	181.49
	11/9/2020	203.79	200.79	23.73	20.73	18.23	33	182.56	167.79	180.06
	5/13/2021	203.79	200.79	20.45	17.45	18.23	33	182.56	167.79	183.34
35BWW11	1/1/2013	203.31	200.9	24.47	22.06	25	35	175.9	165.9	178.84
	8/18/2016	203.31	200.9	22.42	20.01	25	35	175.9	165.9	180.89
	11/8/2017	203.31	200.9	24.30	21.89	25	35	175.9	165.9	179.01
	2/12/2018	203.31	200.9	24.06	21.65	25	35	175.9	165.9	179.25
	3/27/2018	203.31	200.9	23.16	20.75	25	35	175.9	165.9	180.15
	5/21/2018	203.31	200.9	22.64	20.23	25	35	175.9	165.9	180.67
	8/17/2018	203.31	200.9	24.46	22.05	25	35	175.9	165.9	178.85
	11/18/2018	203.31	200.9	22.77	20.36	25	35	175.9	165.9	180.54
	2/13/2019	203.31	200.9	21.49	19.08	25	35	175.9	165.9	181.82
	5/21/2019	203.31	200.9	18.53	16.12	25	35	175.9	165.9	184.78
	8/7/2019	203.31	200.9	19.66	17.25	25	35	175.9	165.9	183.65
	11/21/2019	203.31	200.9	23.28	20.87	25	35	175.9	165.9	180.03
	5/6/2020	203.31	200.9	20.13	17.72	25	35	175.9	165.9	183.18
	11/9/2020	203.31	200.9	22.52	20.11	25	35	175.9	165.9	180.79
	5/17/2021	203.31	200.9	18.22	15.81	25	35	175.9	165.9	185.09
35BWW12	1/1/2013	201.17	198.52	22.55	19.90	20.3	35	178.22	163.52	178.62
	8/17/2016	201.17	198.52	20.86	18.21	20.3	35	178.22	163.52	180.31
	11/9/2017	201.17	198.52	22.75	20.10	20.3	35	178.22	163.52	178.42
	2/14/2018	201.17	198.52	22.40	19.75	20.3	35	178.22	163.52	178.77
	5/23/2018	201.17	198.52	21.34	18.69	20.3	35	178.22	163.52	179.83
	8/22/2018	201.17	198.52	22.96	20.31	20.3	35	178.22	163.52	178.21
	11/20/2018	201.17	198.52	21.86	19.21	20.3	35	178.22	163.52	179.31
	2/13/2019	201.17	198.52	20.52	17.87	20.3	35	178.22	163.52	180.65
	5/21/2019	201.17	198.52	17.78	15.13	20.3	35	178.22	163.52	183.39
	8/5/2019	201.17	198.52	19.54	16.89	20.3	35	178.22	163.52	181.63
	11/25/2019	201.17	198.52	21.74	19.09	20.3	35	178.22	163.52	179.43
	5/6/2020	201.17	198.52	20.31	17.66	20.3	35	178.22	163.52	180.86
	11/11/2020	201.17	198.52	21.00	18.35	20.3	35	178.22	163.52	180.17
	5/18/2021	201.17	198.52	17.32	14.67	20.3	35	178.22	163.52	183.85
35BWW13	1/1/2013	203.52	201.07	25.55	23.10	19.8	34.5	181.27	166.57	177.97
	8/19/2016	203.52	201.07	23.51	21.06	19.8	34.5	181.27	166.57	180.01
	11/7/2017	203.52	201.07	25.50	23.05	19.8	34.5	181.27	166.57	178.02
	2/13/2018	203.52	201.07	25.36	22.91	19.8	34.5	181.27	166.57	178.16
	3/28/2018	203.52	201.07	24.25	21.80	19.8	34.5	181.27	166.57	179.27
	5/24/2018	203.52	201.07	24.00	21.55	19.8	34.5	181.27	166.57	179.52
	8/21/2018	203.52	201.07	25.71	23.26	19.8	34.5	181.27	166.57	177.81
	11/16/2018	203.52	201.07	25.08	22.63	19.8	34.5	181.27	166.57	178.44
	2/14/2019	203.52	201.07	22.75	20.30	19.8	34.5	181.27	166.57	180.77
	5/22/2019	203.52	201.07	20.17	17.72	19.8	34.5	181.27	166.57	183.35
	8/6/2019	203.52	201.07	22.02	19.57	19.8	34.5	181.27	166.57	181.50
	11/25/2019	203.52	201.07	24.35	21.90	19.8	34.5	181.27	166.57	179.17
	5/7/2020	203.52	201.07	21.65	19.20	19.8	34.5	181.27	166.57	181.87
	11/11/2020	203.52	201.07	23.64	21.19	19.8	34.5	181.27	166.57	179.88
	5/17/2021	203.52	201.07	19.80	17.35	19.8	34.5	181.27	166.57	183.72
35BWW14	1/1/2013	201.26	199.55	23.15	21.44	25	35	174.55	164.55	178.11
	8/17/2016	201.26	199.55	21.65	19.94	25	35	174.55	164.55	179.61
	11/7/2017	201.26	199.55	23.40	21.69	25	35	174.55	164.55	177.86
	2/15/2018	201.26	199.55	23.11	21.40	25	35	174.55	164.55	178.15
	5/22/2018	201.26	199.55	22.20	20.49	25	35	174.55	164.55	179.06
	8/22/2018	201.26	199.55	23.67	21.96	25	35	174.55	164.55	177.59
	11/20/2018	201.26	199.55	22.83	21.12	25	35	174.55	164.55	178.43

Table 2-2
Groundwater Elevation Data, LHAAP-35B (37)

Well ID	Sampling Date	TOC Elevation (ft MSL)	Ground Surface Elevation (ft MSL)	Depth to Water (ft TOC)	Depth to Water (ft bgs)	Screen Interval (ft bgs)		Screen Interval (ft MSL)		Water Elevation (ft MSL)
						Top	Bottom	Top	Bottom	
35BWW14	2/12/2019	201.26	199.55	21.54	19.83	25	35	174.55	164.55	179.72
	5/21/2019	201.26	199.55	19.30	17.59	25	35	174.55	164.55	181.96
	8/6/2019	201.26	199.55	20.57	18.86	25	35	174.55	164.55	180.69
	11/25/2019	201.26	199.55	22.52	20.81	25	35	174.55	164.55	178.74
	5/7/2020	201.26	199.55	20.41	18.70	25	35	174.55	164.55	180.85
	11/10/2020	201.26	199.55	21.73	20.02	25	35	174.55	164.55	179.53
	5/18/2021	201.26	199.55	18.74	17.03	25	35	174.55	164.55	182.52
35BWW15	1/1/2013	201.75	200.01	23.60	21.86	17.8	47.5	182.21	152.51	178.15
	8/19/2016	201.75	200.01	22.04	20.30	17.8	47.5	182.21	152.51	179.71
	11/7/2017	201.75	200.01	23.77	22.03	17.8	47.5	182.21	152.51	177.98
	2/13/2018	201.75	200.01	23.64	21.90	17.8	47.5	182.21	152.51	178.11
	3/29/2018	201.75	200.01	22.43	20.69	17.8	47.5	182.21	152.51	179.32
	5/21/2018	201.75	200.01	23.65	21.91	17.8	47.5	182.21	152.51	178.10
	8/20/2018	201.75	200.01	24.07	22.33	17.8	47.5	182.21	152.51	177.68
	11/16/2018	201.75	200.01	23.23	21.49	17.8	47.5	182.21	152.51	178.52
	2/14/2019	201.75	200.01	21.81	20.07	17.8	47.5	182.21	152.51	179.94
	5/22/2019	201.75	200.01	20.35	18.61	17.8	47.5	182.21	152.51	181.40
	8/7/2019	201.75	200.01	21.20	19.46	17.8	47.5	182.21	152.51	180.55
	11/25/2019	201.75	200.01	22.98	21.24	17.8	47.5	182.21	152.51	178.77
	5/7/2020	201.75	200.01	21.10	19.36	17.8	47.5	182.21	152.51	180.65
	11/10/2020	201.75	200.01	22.38	20.64	17.8	47.5	182.21	152.51	179.37
	5/18/2021	201.75	200.01	19.65	17.91	17.8	47.5	182.21	152.51	182.10
35BWW16	1/1/2013	201.2	198.34	23.36	20.50	18.8	33.5	179.54	164.84	177.84
	8/19/2016	201.2	198.34	21.71	18.85	18.8	33.5	179.54	164.84	179.49
	11/7/2017	201.2	198.34	23.51	20.65	18.8	33.5	179.54	164.84	177.69
	2/13/2018	201.2	198.34	23.33	20.47	18.8	33.5	179.54	164.84	177.87
	3/29/2018	201.2	198.34	22.25	19.39	18.8	33.5	179.54	164.84	178.95
	5/24/2018	201.2	198.34	22.28	19.42	18.8	33.5	179.54	164.84	178.92
	8/17/2018	201.2	198.34	23.70	20.84	18.8	33.5	179.54	164.84	177.50
	11/16/2018	201.2	198.34	23.09	20.23	18.8	33.5	179.54	164.84	178.11
	2/15/2019	201.2	198.34	21.57	18.71	18.8	33.5	179.54	164.84	179.63
	5/23/2019	201.2	198.34	20.15	17.29	18.8	33.5	179.54	164.84	181.05
	8/7/2019	201.2	198.34	20.86	18.00	18.8	33.5	179.54	164.84	180.34
	11/25/2019	201.2	198.34	22.65	19.79	18.8	33.5	179.54	164.84	178.55
	5/7/2020	201.2	198.34	20.70	17.84	18.8	33.5	179.54	164.84	180.50
	11/11/2020	201.2	198.34	21.89	19.03	18.8	33.5	179.54	164.84	179.31
	5/18/2021	201.2	198.34	19.32	16.46	18.8	33.5	179.54	164.84	181.88
35BWW17	1/1/2013	201.00	198.16	22.85	20.01	18.3	33	179.86	165.16	178.15
	8/19/2016	201.00	198.16	20.95	18.11	18.3	33	179.86	165.16	180.05
	11/7/2017	201.00	198.16	22.89	20.05	18.3	33	179.86	165.16	178.11
	2/13/2018	201.00	198.16	22.73	19.89	18.3	33	179.86	165.16	178.27
	3/29/2018	201.00	198.16	21.38	18.54	18.3	33	179.86	165.16	179.62
	5/24/2018	201.00	198.16	21.42	18.58	18.3	33	179.86	165.16	179.58
	8/17/2018	201.00	198.16	23.11	20.27	18.3	33	179.86	165.16	177.89
	11/16/2018	201.00	198.16	22.33	19.49	18.3	33	179.86	165.16	178.67
	2/21/2019	201.00	198.16	20.12	17.28	18.3	33	179.86	165.16	180.88
	5/22/2019	201.00	198.16	17.95	15.11	18.3	33	179.86	165.16	183.05
	8/7/2019	201.00	198.16	14.63	11.79	18.3	33	179.86	165.16	186.37
	11/25/2019	201.00	198.16	21.85	19.01	18.3	33	179.86	165.16	179.15
	5/7/2020	201.00	198.16	19.18	16.34	18.3	33	179.86	165.16	181.82
	11/11/2020	201.00	198.16	21.12	18.28	18.3	33	179.86	165.16	179.88
	5/18/2021	201.00	198.16	17.32	14.48	18.3	33	179.86	165.16	183.68
35BWW18	1/1/2013	206.72	203.8	27.94	25.02	17.77	32.5	186.03	171.3	178.78
	8/16/2016	206.72	203.8	26.24	23.32	17.77	32.5	186.03	171.3	180.48
	11/7/2017	206.72	203.8	27.50	24.58	17.77	32.5	186.03	171.3	179.22
	2/13/2018	206.72	203.8	27.90	24.98	17.77	32.5	186.03	171.3	178.82
	3/27/2018	206.72	203.8	27.18	24.26	17.77	32.5	186.03	171.3	179.54
	5/21/2018	206.72	203.8	27.00	24.08	17.77	32.5	186.03	171.3	179.72
	8/16/2018	206.72	203.8	27.95	25.03	17.77	32.5	186.03	171.3	178.77

Table 2-2
Groundwater Elevation Data, LHAAP-35B (37)

Well ID	Sampling Date	TOC Elevation (ft MSL)	Ground Surface Elevation (ft MSL)	Depth to Water (ft TOC)	Depth to Water (ft bgs)	Screen Interval (ft bgs)		Screen Interval (ft MSL)		Water Elevation (ft MSL)
						Top	Bottom	Top	Bottom	
35BWW18	11/19/2018	206.72	203.8	27.39	24.47	17.77	32.5	186.03	171.3	179.33
	2/14/2019	206.72	203.8	26.37	23.45	17.77	32.5	186.03	171.3	180.35
	5/20/2019	206.72	203.8	25.60	22.68	17.77	32.5	186.03	171.3	181.12
	8/5/2019	206.72	203.8	25.61	22.69	17.77	32.5	186.03	171.3	181.11
	11/25/2019	206.72	203.8	26.92	24.00	17.77	32.5	186.03	171.3	179.80
	5/11/2020	206.72	203.8	25.70	22.78	17.77	32.5	186.03	171.3	181.02
	11/9/2020	206.72	203.8	26.15	23.23	17.77	32.5	186.03	171.3	180.57
	5/18/2021	206.72	203.8	24.20	21.28	17.77	32.5	186.03	171.3	182.52
35BWW19	1/1/2013	206.66	204.1	27.75	25.19	18.75	33.48	185.35	170.62	178.91
	8/16/2016	206.66	204.1	25.82	23.26	18.75	33.48	185.35	170.62	180.84
	11/7/2017	206.66	204.1	27.20	24.64	18.75	33.48	185.35	170.62	179.46
	2/13/2018	206.66	204.1	27.48	24.92	18.75	33.48	185.35	170.62	179.18
	3/27/2018	206.66	204.1	26.99	24.43	18.75	33.48	185.35	170.62	179.67
	5/21/2018	206.66	204.1	26.70	24.14	18.75	33.48	185.35	170.62	179.96
	8/16/2018	206.66	204.1	27.55	24.99	18.75	33.48	185.35	170.62	179.11
	11/19/2018	206.66	204.1	27.21	24.65	18.75	33.48	185.35	170.62	179.45
	2/14/2019	206.66	204.1	26.19	23.63	18.75	33.48	185.35	170.62	180.47
	5/20/2019	206.66	204.1	25.66	23.10	18.75	33.48	185.35	170.62	181.00
	8/5/2019	206.66	204.1	25.42	22.86	18.75	33.48	185.35	170.62	181.24
	11/25/2019	206.66	204.1	26.50	23.94	18.75	33.48	185.35	170.62	180.16
	5/11/2020	206.66	204.1	25.63	23.07	18.75	33.48	185.35	170.62	181.03
	11/9/2020	206.66	204.1	25.75	23.19	18.75	33.48	185.35	170.62	180.91
	5/18/2021	206.66	204.1	24.22	21.66	18.75	33.48	185.35	170.62	182.44
35BWW20	1/1/2013	205.23	202.67	26.30	23.74	15.14	29.9	187.53	172.77	178.93
	8/18/2016	205.23	202.67	24.78	22.22	15.14	29.9	187.53	172.77	180.45
	11/8/2017	205.23	202.67	26.50	23.94	15.14	29.9	187.53	172.77	178.73
	2/12/2018	205.23	202.67	26.35	23.79	15.14	29.9	187.53	172.77	178.88
	3/27/2018	205.23	202.67	25.45	22.89	15.14	29.9	187.53	172.77	179.78
	5/24/2018	205.23	202.67	25.40	22.84	15.14	29.9	187.53	172.77	179.83
	8/20/2018	205.23	202.67	26.80	24.24	15.14	29.9	187.53	172.77	178.43
	11/18/2018	205.23	202.67	25.58	23.02	15.14	29.9	187.53	172.77	179.65
	2/13/2019	205.23	202.67	24.47	21.91	15.14	29.9	187.53	172.77	180.76
	5/22/2019	205.23	202.67	21.95	19.39	15.14	29.9	187.53	172.77	183.28
	8/6/2019	205.23	202.67	23.67	21.11	15.14	29.9	187.53	172.77	181.56
	11/25/2019	205.23	202.67	25.75	23.19	15.14	29.9	187.53	172.77	179.48
	5/11/2020	205.23	202.67	23.05	20.49	15.14	29.9	187.53	172.77	182.18
	11/9/2020	205.23	202.67	24.80	22.24	15.14	29.9	187.53	172.77	180.43
	5/13/2021	205.23	202.67	21.57	19.01	15.14	29.9	187.53	172.77	183.66
35BWW23	1/1/2013	205.37	202.74	27.03	24.40	20	30	182.74	172.74	178.34
	8/17/2016	205.37	202.74	27.03	24.40	20	30	182.74	172.74	178.34
	11/9/2017	205.37	202.74	28.56	25.93	20	30	182.74	172.74	176.81
	2/15/2018	205.37	202.74	28.35	25.72	20	30	182.74	172.74	177.02
	5/22/2018	205.37	202.74	27.63	25.00	20	30	182.74	172.74	177.74
	8/22/2018	205.37	202.74	28.86	26.23	20	30	182.74	172.74	176.51
	11/20/2018	205.37	202.74	28.48	25.85	20	30	182.74	172.74	176.89
	2/12/2019	205.37	202.74	27.55	24.92	20	30	182.74	172.74	177.82
	5/21/2019	205.37	202.74	26.55	23.92	20	30	182.74	172.74	178.82
	8/6/2019	205.37	202.74	26.49	23.86	20	30	182.74	172.74	178.88
	11/25/2019	205.37	202.74	27.77	25.14	20	30	182.74	172.74	177.60
	5/7/2020	205.37	202.74	26.77	24.14	20	30	182.74	172.74	178.60
	11/10/2020	205.37	202.74	27.00	24.37	20	30	182.74	172.74	178.37
	5/18/2021	205.37	202.74	25.93	23.30	20	30	182.74	172.74	179.44
35BWW24	8/19/2016	206.64	203.82	27.89	25.07	19.9	29.6	183.92	174.22	178.75
	2/16/2018	206.64	203.82	29.37	26.55	19.9	29.6	183.92	174.22	177.27
	3/28/2018	206.64	203.82	28.83	26.01	19.9	29.6	183.92	174.22	177.81
	5/24/2018	206.64	203.82	28.65	25.83	19.9	29.6	183.92	174.22	177.99
	8/21/2018	206.64	203.82	29.80	26.98	19.9	29.6	183.92	174.22	176.84
	11/16/2018	206.64	203.82	29.41	26.59	19.9	29.6	183.92	174.22	177.23
	2/15/2019	206.64	203.82	28.27	25.45	19.9	29.6	183.92	174.22	178.37

Table 2-2
Groundwater Elevation Data, LHAAP-35B (37)

Well ID	Sampling Date	TOC Elevation (ft MSL)	Ground Surface Elevation (ft MSL)	Depth to Water (ft TOC)	Depth to Water (ft bgs)	Screen Interval (ft bgs)		Screen Interval (ft MSL)		Water Elevation (ft MSL)
						Top	Bottom	Top	Bottom	
35BWW24	5/22/2019	206.64	203.82	27.53	24.71	19.9	29.6	183.92	174.22	179.11
	8/7/2019	206.64	203.82	27.45	24.63	19.9	29.6	183.92	174.22	179.19
	11/25/2019	206.64	203.82	28.77	25.95	19.9	29.6	183.92	174.22	177.87
	5/7/2020	206.64	203.82	27.22	24.40	19.9	29.6	183.92	174.22	179.42
	11/10/2020	206.64	203.82	28.22	25.40	19.9	29.6	183.92	174.22	178.42
	5/17/2021	206.64	203.82	26.82	24.00	19.9	29.6	183.92	174.22	179.82
35BWW25	8/19/2016	204.31	201.74	25.45	22.88	19.9	29.6	181.84	172.14	178.86
	11/8/2017	204.31	201.74	27.27	24.70	19.9	29.6	181.84	172.14	177.04
	2/16/2018	204.31	201.74	26.92	24.35	19.9	29.6	181.84	172.14	177.39
	3/28/2018	204.31	201.74	26.38	23.81	19.9	29.6	181.84	172.14	177.93
	5/23/2018	204.31	201.74	26.32	23.75	19.9	29.6	181.84	172.14	177.99
	8/20/2018	204.31	201.74	27.31	24.74	19.9	29.6	181.84	172.14	177.00
	11/16/2018	204.31	201.74	26.92	24.35	19.9	29.6	181.84	172.14	177.39
	2/15/2019	204.31	201.74	25.80	23.23	19.9	29.6	181.84	172.14	178.51
	5/22/2019	204.31	201.74	25.23	22.66	19.9	29.6	181.84	172.14	179.08
	8/7/2019	204.31	201.74	25.28	22.71	19.9	29.6	181.84	172.14	179.03
	11/25/2019	204.31	201.74	26.52	23.95	19.9	29.6	181.84	172.14	177.79
	5/7/2020	204.31	201.74	25.36	22.79	19.9	29.6	181.84	172.14	178.95
	11/10/2020	204.31	201.74	25.92	23.35	19.9	29.6	181.84	172.14	178.39
	5/17/2021	204.31	201.74	24.38	21.81	19.9	29.6	181.84	172.14	179.93
35BWW26	8/17/2016	205.86	230.41	26.13	50.68	25.2	34.9	205.21	195.51	179.73
	11/9/2017	205.86	230.41	27.71	52.26	25.2	34.9	205.21	195.51	178.15
	2/14/2018	205.86	230.41	27.60	52.15	25.2	34.9	205.21	195.51	178.26
	5/22/2018	205.86	230.41	26.97	51.52	25.2	34.9	205.21	195.51	178.89
	8/22/2018	205.86	230.41	28.07	52.62	25.2	34.9	205.21	195.51	177.79
	11/20/2018	205.86	230.41	27.48	52.03	25.2	34.9	205.21	195.51	178.38
	2/12/2019	205.86	230.41	26.50	51.05	25.2	34.9	205.21	195.51	179.36
	5/20/2019	205.86	230.41	25.31	49.86	25.2	34.9	205.21	195.51	180.55
	8/6/2019	205.86	230.41	25.60	50.15	25.2	34.9	205.21	195.51	180.26
	11/25/2019	205.86	230.41	27.07	51.62	25.2	34.9	205.21	195.51	178.79
	5/6/2020	205.86	230.41	25.75	50.30	25.2	34.9	205.21	195.51	180.11
	11/10/2020	205.86	230.41	26.11	50.66	25.2	34.9	205.21	195.51	179.75
	5/13/2021	205.86	230.41	25.50	50.05	25.2	34.9	205.21	195.51	180.36
LHSMW58	1/1/2013	203.56	200.78	24.77	21.99	21.4	31.4	179.38	169.38	178.79
	8/18/2016	203.56	200.78	23.26	20.48	21.4	31.4	179.38	169.38	180.30
	11/8/2017	203.56	200.78	25.05	22.27	21.4	31.4	179.38	169.38	178.51
	2/12/2018	203.56	200.78	24.87	22.09	21.4	31.4	179.38	169.38	178.69
	3/27/2018	203.56	200.78	23.95	21.17	21.4	31.4	179.38	169.38	179.61
	5/24/2018	203.56	200.78	23.87	21.09	21.4	31.4	179.38	169.38	179.69
	8/20/2018	203.56	200.78	25.21	22.43	21.4	31.4	179.38	169.38	178.35
	11/18/2018	203.56	200.78	24.13	21.35	21.4	31.4	179.38	169.38	179.43
	2/13/2019	203.56	200.78	22.98	20.20	21.4	31.4	179.38	169.38	180.58
	5/22/2019	203.56	200.78	20.22	17.44	21.4	31.4	179.38	169.38	183.34
	8/7/2019	203.56	200.78	22.12	19.34	21.4	31.4	179.38	169.38	181.44
	11/25/2019	203.56	200.78	24.22	21.44	21.4	31.4	179.38	169.38	179.34
	5/11/2020	203.56	200.78	21.48	18.70	21.4	31.4	179.38	169.38	182.08
	11/9/2020	203.56	200.78	23.40	20.62	21.4	31.4	179.38	169.38	180.16
	5/13/2021	203.56	200.78	19.68	16.90	21.4	31.4	179.38	169.38	183.88

Notes:
bgs - below ground surface
Dry - insufficient or no water in well
ft - feet
MSL - mean sea level
TOC - top of casing

Table 2-3
Surface Water and Groundwater Results RA-O 2013–2021

Location Code			35AWW08																									
Sample ID			35AWW08-		35AWW08-		35AWW08-		35AWW08-		35AWW08F-		35AWW08-		35AWW08-		35AWW08FF-		35AWW08-		35AWW08-		35AWW08-		35AWW08FF-		35AWW08F-		35AWW08-	
Sample Date			4/29/2013		4/29/2013		8/20/2013		8/20/2013		8/20/2013		10/10/2013		10/10/2013		10/10/2013		1/29/2014		1/29/2014		1/29/2014		1/29/2014		1/29/2014		5/20/2014	
Sample Event			0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0	
Sample Purpose			REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																														
Bromide	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Chloride	mg/L		NA		NA		2,510		NA		NA		905		NA		NA		1,590		2,190		NA		NA		NA		NA	
Fluoride	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	10	NA		NA		< 4	U	NA		NA		12.3	J	NA		NA		< 10	U	< 10	U	NA		NA		NA		NA	
Nitrite	mg/L	1	NA		NA		< 4	U	NA		NA		< 20	U	NA		NA		< 10	U	< 10	U	NA		NA		NA		NA	
Sulfate	mg/L		NA		NA		1,480		NA		NA		703		NA		NA		262		285		NA		NA		NA		NA	
SULFIDE																														
Sulfide	mg/L		NA		NA		1.2	J	NA		NA		< 1.89	U	NA		NA		5.11		< 1	U	NA		NA		NA		NA	
DHC																														
Dehalococcoides	cells/mL		NA		NA		0.9		NA		NA		3.6		NA		NA		NA		NA		NA		NA		NA		NA	
FIELD TESTS																														
Specific conductivity	µmhos/cm		8.19		NM		NM		8.23		NM		NM		47.7		NM		NM		NM		23.4		NM		NM		18.2	
Dissolved oxygen	mg/L		0.7		NM		NM		9.84		NM		NM		9.57		NM		NM		NM		6.57		NM		NM		9.18	
Oxidation Reduction Potential	mV		290		NM		NM		112		NM		NM		-100		NM		NM		NM		-132		NM		NM		-184	
pH	pH_units		5.51		NM		NM		6.05		NM		NM		6.7		NM		NM		NM		6.68		NM		NM		5.57	
Temperature	C		24.81		NM		NM		23.44		NM		NM		16.82		NM		NM		NM		17.99		NM		NM		23.2	
Turbidity	NTU		2.8		NM		NM		26.9		NM		NM		4.1		NM		NM		NM		79.8		NM		NM		90.4	
Water Level at Reading Time	Ft BTOC		NM		NM		NM		NM		NM		NM		NM		NM		NM		NM		NM		NM		NM		NA	
GASES																														
Carbon dioxide	µg/L		NA		NA		143,000		NA		NA		NA		NA		NA		NA		428,000		NA		NA		NA		NA	
Ethane	µg/L		NA		NA		< 2	U	NA		NA		< 2	U	NA		NA		< 2	U	< 2	U	NA		NA		NA		NA	
Ethylene	µg/L		NA		NA		< 2	U	NA		NA		< 2	U	NA		NA		< 2	U	< 2	U	NA		NA		NA		NA	
Methane	µg/L		NA		NA		< 10.1		NA		NA		< 5.38		NA		NA		NA		345		NA		NA		NA		NA	
GEN CHEMISTRY																														
Ferrous Iron (Iron II)	mg/L		NA		NA		NA		0.52		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
TOTAL ORGANIC CARBON																														
Total Inorganic Carbon	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L		NA		NA		16.5		NA		NA		66,400		NA		NA		16,900		43,500		NA		NA		NA		NA	
METALS																														
Antimony	mg/L	0.006	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Manganese	mg/L	14	NA		NA		5.71		NA		5.67		45.8		NA		40.7		81.9		NA		NA		68.3		60.9		NA	
VOLATILES																														
1,1-Dichloroethene	µg/L	7	NA		NA		< 10	U	NA		NA		< 10	U	NA		NA		< 10	U	< 10	U	NA		NA		NA		NA	
cis-1,2-Dichloroethene	µg/L	70	NA		NA		9.35	J	NA		NA		< 5	U	NA		NA		47.2		55.9		NA		NA		NA		NA	
Tetrachloroethene	µg/L	5	NA		NA		1,640		NA		NA		603	J	NA		NA		204		599		NA		NA		NA		NA	
Trichloroethene	µg/L	5	NA		NA		544		NA		NA		149	J	NA		NA		953		895		NA		NA		NA		NA	
Vinyl chloride	µg/L	2	NA		NA		< 5	U	NA		NA		< 5	U	NA		NA		< 5	U	< 5	U	NA		NA		NA		NA	

Table 2-3
Surface Water and Groundwater Results RA-O 2013–2021

Location Code			35AWW08																									
Sample ID			35AWW08FF-		35AWW08-		35AWW08-		35AWW08F-		35AWW08FF-		35AWW08-		35AWW08-		35AWW08F-		35AWW08-		35AWW08-		35AWW08F-		35AWW08FF-		35AWW08-	
Sample Date			5/20/2014		10/27/2014		10/27/2014		10/27/2014		10/27/2014		1/21/2015		1/21/2015		1/21/2015		1/21/2015		4/15/2015		4/15/2015		4/15/2015		4/15/2015		7/8/2015	
Sample Event			0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0	
Sample Purpose			REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																												
Bromide	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Chloride	mg/L		NA		2,020		NA		NA		NA		NA		1,900		NA		NA		NA		2,250		NA		NA		NA	
Fluoride	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	10	NA		< 20	U	NA		NA		NA		NA		< 3	U	NA		NA		NA		< 2	U	NA		NA		NA	
Nitrite	mg/L	1	NA		< 20	U	NA		NA		NA		NA		< 3	U	NA		NA		NA		< 2	U	NA		NA		NA	
Sulfate	mg/L		NA		< 100	U	NA		NA		NA		NA		< 15	U	NA		NA		NA		< 10	U	NA		NA		NA	
SULFIDE																														
Sulfide	mg/L		NA		12.4		NA		NA		NA		NA		2.8		NA		NA		NA		2.67		NA		NA		NA	
DHC																														
Dehalococcoides	cells/mL		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
FIELD TESTS																														
Specific conductivity	µmhos/cm		NM		NM		19.5		NM		NM		18.1		NM		NM		NM		16.4		NM		NM		NM		13.9	
Dissolved oxygen	mg/L		NM		NM		8.52		NM		NM		-	-	NM		NM		NM		-	-	NM		NM		NM		-	-
Oxidation Reduction Potential	mV		NM		NM		-164		NM		NM		-216		NM		NM		NM		-0.41		NM		NM		NM		-252	
pH	pH_units		NM		NM		6.86		NM		NM		6.82		NM		NM		NM		8.06		NM		NM		NM		8.07	
Temperature	C		NM		NM		23.08		NM		NM		16.1		NM		NM		NM		17.78		NM		NM		NM		25.74	
Turbidity	NTU		NM		NM		213		NM		NM		225		NM		NM		NM		448		NM		NM		NM		325	
Water Level at Reading Time	Ft BTOC		NM		NM		NM		NM		NM		NM		NM		NM		NM		NM		NM		NM		NM		NM	
GASES																														
Carbon dioxide	µg/L		NA		505,000		NA		NA		NA		NA		152,000	J,H1	NA		NA		NA		249,000		NA		NA		NA	
Ethane	µg/L		NA		< 2	U	NA		NA		NA		NA		< 40	U	NA		NA		NA		< 20	U	NA		NA		NA	
Ethylene	µg/L		NA		< 2	U	NA		NA		NA		NA		< 40	U	NA		NA		NA		< 20	U	NA		NA		NA	
Methane	µg/L		NA		4,420		NA		NA		NA		NA		2,540	H1	NA		NA		NA		3,380		NA		NA		NA	
GEN CHEMISTRY																														
Ferrous Iron (Iron II)	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
TOTAL ORGANIC CARBON																														
Total Inorganic Carbon	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L		NA		13,900		NA		NA		NA		NA		6,030		NA		NA		NA		8,330		NA		NA		NA	
METALS																														
Antimony	mg/L	0.006	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Manganese	mg/L	14	57.9		NA		NA		40.5		36.8		NA		NA		29.9		30.4		NA		NA		21.5		22.9		NA	
VOLATILES																														
1,1-Dichloroethene	µg/L	7	NA		< 50	U	NA		NA		NA		NA		< 50	U	NA		NA		NA		< 50	U	NA		NA		NA	
cis-1,2-Dichloroethene	µg/L	70	NA		38.6	J	NA		NA		NA		NA		27.2	J	NA		NA		NA		30.7	J	NA		NA		NA	
Tetrachloroethene	µg/L	5	NA		112		NA		NA		NA		NA		119		NA		NA		NA		110		NA		NA		NA	
Trichloroethene	µg/L	5	NA		653		NA		NA		NA		NA		491		NA		NA		NA		607		NA		NA		NA	
Vinyl chloride	µg/L	2	NA		< 25	U	NA		NA		NA		NA		< 25	U	NA		NA		NA		< 25	U	NA		NA		NA	

Table 2-3
Surface Water and Groundwater Results RA-O 2013–2021

	Location Code		35AWW08								35AWW08																			
	Sample ID		35AWW08-		35AWW08FF-		35AWW08F-		35AWW08-		35AWW08-		35AWW08-		35AWW08-		35AWW08F-		35AWW08FF-		35AWW08-		35AWW08-		35AWW08-		35AWW08-		35AWW08-	
	Sample Date		7/8/2015		7/8/2015		7/8/2015		10/8/2015		10/8/2015		10/8/2015		10/8/2015		10/8/2015		10/8/2015		12/15/2015		4/13/2016		4/13/2016		10/4/2016		10/4/2016	
	Sample Event		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0	
	Sample Purpose		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																														
Bromide	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Chloride	mg/L		2,250		NA		NA		NA		NA		NA		2,130	J	NA		NA		NA		NA		NA		NA		2,000	
Fluoride	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	10	< 2	U	NA		NA		NA		NA		NA		< 5	U	NA		NA		NA		NA		NA		NA		< 2	U
Nitrite	mg/L	1	< 2	U	NA		NA		NA		NA		NA		< 5	U	NA		NA		NA		NA		NA		NA		< 2	U
Sulfate	mg/L		< 10	U	NA		NA		NA		NA		NA		< 25	U	NA		NA		NA		NA		NA		NA		< 10	U
SULFIDE																														
Sulfide	mg/L		< 1	U	NA		NA		NA		NA		NA		0.762	J	NA		NA		NA		NA		NA		NA		< 1	U
DHC																														
Dehalococcoides	cells/mL		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
FIELD TESTS																														
Specific conductivity	µmhos/cm		NM		NM		NM		11.3		NM		NM		NM		NM		NM		14.7		13.9		NM		11.8		NM	
Dissolved oxygen	mg/L		NM		NM		NM		-	-	NM		NM		NM		NM		NM		-	-	-	-	NM		-	-	NM	
Oxidation Reduction Potential	mV		NM		NM		NM		-219		NM		NM		NM		NM		NM		-128		-162		NM		-	-	NM	
pH	pH_units		NM		NM		NM		7.22		NM		NM		NM		NM		NM		6.95		6.86		NM		6.92		NM	
Temperature	C		NM		NM		NM		19.95		NM		NM		NM		NM		NM		18.43		17.69		NM		19.46		NM	
Turbidity	NTU		NM		NM		NM		300		NM		NM		NM		NM		NM		126		74.6		NM		50.4		NM	
Water Level at Reading Time	Ft BTOC		NM		NM		NM		NM		NM		NM		NM		NM		NM		NM		NM		NM		NM		NM	
GASES																														
Carbon dioxide	µg/L		370,000		NA		NA		NA		NA		NA		374,000		NA		NA		NA		NA		NA		NA		424,000	
Ethane	µg/L		< 20	U	NA		NA		NA		NA		NA		< 20	U	NA		NA		NA		NA		NA		NA		< 20	U
Ethylene	µg/L		< 20	U	NA		NA		NA		NA		NA		< 20	U	NA		NA		NA		NA		NA		NA		< 20	U
Methane	µg/L		5,600		NA		NA		NA		NA		NA		5,510		NA		NA		NA		NA		NA		NA		7,350	
GEN CHEMISTRY																														
Ferrous Iron (Iron II)	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
TOTAL ORGANIC CARBON																														
Total Inorganic Carbon	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L		2,540		NA		NA		NA		NA		NA		2,240		NA		NA		NA		NA		NA		NA		918	
METALS																														
Antimony	mg/L	0.006	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA			
Manganese	mg/L	14	NA		12.7		18.3		NA		NA		NA		NA		13.5		12.3		NA		NA		NA		NA			
VOLATILES																														
1,1-Dichloroethene	µg/L	7	< 100	U	NA		NA		NA		NA		NA		< 25	U	NA		NA		NA		NA		< 25	U	NA		< 10	U
cis-1,2-Dichloroethene	µg/L	70	73.5	J	NA		NA		NA		NA		NA		79.6		NA		NA		NA		NA		60.9		NA		41.7	
Tetrachloroethene	µg/L	5	110		NA		NA		NA		NA		NA		79		NA		NA		NA		NA		80.1		NA		36.9	
Trichloroethene	µg/L	5	746		NA		NA		NA		NA		NA		581		NA		NA		NA		NA		234		NA		235	
Vinyl chloride	µg/L	2	< 50	U	NA		NA		NA		NA		NA		< 12.5	U	NA		NA		NA		NA		14.2	J	NA		7.46	J

Table 2-3
Surface Water and Groundwater Results RA-O 2013–2021

			Location Code	35AWW08				35BSW01										35BSW02		35BSW02						35BWW01			
			Sample ID	35AWW08FF-		35AWW08F-		35BSW01-101713		35BSW01-021218		35BSW01-180327		35BSW01-181116		35BSW01-200511		35BSW02-101713		35BSW02-021218		35BSW02-180327		35BSW02-181116		35BSW02-200511		35BWW01-		35BWW01-	
			Sample Date	10/4/2016		10/4/2016		10/17/2013		2/12/2018		3/27/2018		11/16/2018		5/11/2020		10/17/2013		2/12/2018		3/27/2018		11/16/2018		5/11/2020		10/7/2013		10/20/2015	
			Sample Event	0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0	
			Sample Purpose	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL		Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																															
Bromide	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Chloride	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Fluoride	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	10		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Nitrite	mg/L	1		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
SULFIDE																															
Sulfide	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
DHC																															
Dehalococcoides	cells/mL			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
FIELD TESTS																															
Specific conductivity	µmhos/cm			NM		NM		NM		0.110		0.167		0.055		NM		NM		0.105		0.161		0.083		NM		-99		0.145	
Dissolved oxygen	mg/L			NM		NM		NM		12.35		7.43		11.5		NM		NM		11.29		7.09		11.14		NM		-	-	-	-
Oxidation Reduction Potential	mV			NM		NM		NM		92.3		153.6		190.4		NM		NM		108.5		168.9		211.3		NM		-	-	101	
pH	pH_units			NM		NM		NM		7.20		6.34		5.95		NM		NM		6.78		6.09		5.16		NM		-	-	6.06	
Temperature	C			NM		NM		NM		5.48		23.95		9.63		NM		NM		5.47		21.17		9.75		NM		-99		16.79	
Turbidity	NTU			NM		NM		NM		45.5		11.8		30.6		NM		NM		43.6		16.7		29.5		NM		-	-	708	
Water Level at Reading Time	Ft BTOC			NM		NM		NM		NM		NM		NM		NM		NM		NM		NM		NM		NM		NM		NM	
GASES																															
Carbon dioxide	µg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Ethane	µg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Ethylene	µg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Methane	µg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
GEN CHEMISTRY																															
Ferrous Iron (Iron II)	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
TOTAL ORGANIC CARBON																															
Total Inorganic Carbon	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
METALS																															
Antimony	mg/L	0.006		NA		NA		NA		NA		< 0.001	U	NA		NA		NA		NA		< 0.001	U	NA		NA		NA		NA	
Manganese	mg/L	14		9.38		7.97		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
VOLATILES																															
1,1-Dichloroethene	µg/L	7		NA		NA		< 1	U	< 0.5	U	NA		< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	NA		< 0.5	U	< 0.5	U	NA		NA	
cis-1,2-Dichloroethene	µg/L	70		NA		NA		< 0.5	U	< 0.5	U	NA		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	NA		< 0.5	U	< 0.5	U	NA		NA	
Tetrachloroethene	µg/L	5		NA		NA		< 0.5	U	< 0.5	U	NA		< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	NA		< 0.5	U	< 1	U	NA		NA	
Trichloroethene	µg/L	5		NA		NA		< 0.5	U	< 0.5	U	NA		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	NA		< 0.5	U	< 0.5	U	NA		NA	
Vinyl chloride	µg/L	2		NA		NA		< 0.5	U	< 0.5	U	NA		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	NA		< 0.5	U	< 0.5	U	NA		NA	

Table 2-3
Surface Water and Groundwater Results RA-O 2013–2021

			Location Code		35BWW01																					
			Sample ID		35BWW01-		35BWW01F-		35BWW01-		35BWW01-		35BWW01F-		35BWW01-		35BWW01-		35BWW01-		35BWW01-		35BWW01-		35BWW01-	
			Sample Date		10/20/2015		10/20/2015		2/17/2016		2/17/2016		2/17/2016		8/19/2016		8/19/2016		11/8/2017		2/14/2018		3/29/2018		5/24/2018		5/24/2018	
			Sample Event		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0	
			Sample Purpose		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		FD	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																										
Bromide	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Chloride	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Fluoride	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	10	< 0.4	U	NA		NA		< 0.2	U	NA		NA		NA		NA		NA		NA		NA		NA	
Nitrite	mg/L	1	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L		25.5		NA		NA		24.7		NA		NA		NA		NA		NA		NA		NA		NA	
SULFIDE																										
Sulfide	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
DHC																										
Dehalococcoides	cells/mL		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
FIELD TESTS																										
Specific conductivity	µmhos/cm		NM		NM		0.111		NM		NM		0.21		NM		0.201		0.106		0.105		0.082		NM	
Dissolved oxygen	mg/L		NM		NM		-	-	NM		NM		-	-	NM		2.32		6		5.26		0		NM	
Oxidation Reduction Potential	mV		NM		NM		251		NM		NM		-	-	NM		204.3		185.6		257.3		491		NM	
pH	pH_units		NM		NM		5.72		NM		NM		4.53		NM		6.60		5.46		4.49		4.03		NM	
Temperature	C		NM		NM		13.5		NM		NM		20.77		NM		18.13		15.5		18.21		19.08		NM	
Turbidity	NTU		NM		NM		216		NM		NM		316		NM		140.6		124.7		130.9		59.7		NM	
Water Level at Reading Time	Ft BTOC		NM		NM		NM		NM		NM		NM		NM		15.6		15.4		13.1		12.53		NM	
GASES																										
Carbon dioxide	µg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Ethane	µg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Ethylene	µg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Methane	µg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
GEN CHEMISTRY																										
Ferrous Iron (Iron II)	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
TOTAL ORGANIC CARBON																										
Total Inorganic Carbon	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
METALS																										
Antimony	mg/L	0.006	NA		NA		NA		NA		NA		NA		NA		NA		NA		< 0.001	U	NA		NA	
Manganese	mg/L	14	NA		0.179		NA		NA		0.0365		NA		NA		NA		NA		NA		NA		NA	
VOLATILES																										
1,1-Dichloroethene	µg/L	7	NA		NA		NA		NA		NA		NA		< 1	U	< 1	U	< 0.5	U	NA		< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	NA		NA		NA		NA		NA		NA		< 0.5	U	< 1	U	< 0.5	U	NA		< 0.5	U	< 0.5	U
Tetrachloroethene	µg/L	5	NA		NA		NA		NA		NA		NA		< 0.5	U	< 1	U	< 0.5	U	NA		< 0.5	U	< 0.5	U
Trichloroethene	µg/L	5	NA		NA		NA		NA		NA		NA		< 0.5	U	< 1	U	< 0.5	U	NA		< 0.5	U	< 0.5	U
Vinyl chloride	µg/L	2	NA		NA		NA		NA		NA		NA		< 0.5	U	< 1	U	< 0.5	U	NA		< 0.5	U	< 0.5	U

Table 2-3
Surface Water and Groundwater Results RA-O 2013–2021

			Location Code	35BWW01																						35BWW02			
			Sample ID	35BWW01-		35BWW01-		35BWW01-		35BWW01-		35BWW01-		35BWW01-		35BWW01-		35BWW01-		35BWW01-		35BWW01-		35BWW01-		35BWW02-		35BWW02-	
			Sample Date	11/15/2018		2/12/2019		2/12/2019		5/20/2019		5/20/2019		8/5/2019		8/5/2019		11/21/2019		5/6/2020		5/6/2020		11/9/2020		5/13/2021		10/4/2013		8/19/2016	
			Sample Event	0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		16.11 - 16.11		0 - 0		0 - 0	
			Sample Purpose	REG		FD		REG		FD		REG		FD		REG		REG		REG		FD		REG		REG		REG		REG	
Parameter	Units	MCL		Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																															
Bromide	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Chloride	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Fluoride	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	10		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Nitrite	mg/L	1		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
SULFIDE																															
Sulfide	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
DHC																															
Dehalococcoides	cells/mL			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
FIELD TESTS																															
Specific conductivity	µmhos/cm			0.089		NM		0.104		NM		0.117		NM		0.113		0.079		0.102		NM		0.076		0.114		-99		-99	
Dissolved oxygen	mg/L			2.87		NM		3.91		NM		1.04		NM		0.15		1.29		1.5		NM		0.55		0.77		-	-	-	-
Oxidation Reduction Potential	mV			240.2		NM		354		NM		357		NM		292		371		238		NM		267		255		-	-	-	-
pH	pH_units			4.84		NM		5.57		NM		4.06		NM		5.40		5.41		5.1		NM		4.39		4.64		-	-	-	-
Temperature	C			18.12		NM		15.91		NM		21.6		NM		23.14		20.51		17.46		NM		20.33		16.61		-	-	-99	
Turbidity	NTU			121.9		NM		33.5		NM		53.1		NM		26.3		37.7		63.1		NM		11.2		24.2		-	-	-	-
Water Level at Reading Time	Ft BTOC			15.1		NM		8.34		NM		7.4		NM		12.12		14.59		8.51		NM		14.43		7.1		NM		NM	
GASES																															
Carbon dioxide	µg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Ethane	µg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Ethylene	µg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Methane	µg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
GEN CHEMISTRY																															
Ferrous Iron (Iron II)	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
TOTAL ORGANIC CARBON																															
Total Inorganic Carbon	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
METALS																															
Antimony	mg/L	0.006		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Manganese	mg/L	14		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
VOLATILES																															
1,1-Dichloroethene	µg/L	7		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	NA		NA	
cis-1,2-Dichloroethene	µg/L	70		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	NA		NA	
Tetrachloroethene	µg/L	5		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U	< 0.5	U	< 1	U	NA		NA	
Trichloroethene	µg/L	5		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	NA		NA	
Vinyl chloride	µg/L	2		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	NA		NA	

Table 2-3
Surface Water and Groundwater Results RA-O 2013–2021

			35BWW03																						35BWW04			
Location Code			35BWW03																									
Sample ID			35BWW03-		35BWW03-		35BWW03-		35BWW03-		35BWW03-		35BWW03-		35BWW03-		35BWW03FD-		35BWW03-		35BWW03-		35BWW03FD-		35BWW03-	35BWW04-		35BW04-050413	
Sample Date			10/5/2013		10/5/2013		10/20/2015		10/20/2015		12/22/2015		12/22/2015		2/17/2016		2/17/2016		2/17/2016		8/18/2016		8/18/2016		8/18/2016	5/4/2013		5/4/2013	
Sample Event			0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0	0 - 0		0 - 0	
Sample Purpose			REG		REG		REG		REG		REG		REG		REG		FD		REG		REG		FD		REG	REG		REG	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																													
Bromide	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	NA		NA	
Chloride	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	NA		NA	
Fluoride	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	NA		NA	
Nitrate	mg/L	10	NA		NA		NA		0.252	J	NA		< 0.2	U	NA		< 0.2	U	< 0.2	U	NA		NA		NA	NA		NA	
Nitrite	mg/L	1	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	NA		NA	
Sulfate	mg/L		NA		NA		NA		3.82		NA		3.69		NA		3.54		3.43		NA		NA		NA	NA		NA	
SULFIDE																													
Sulfide	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	NA		NA	
DHC																													
Dehalococcoides	cells/mL		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	NA		NA	
FIELD TESTS																													
Specific conductivity	µmhos/cm		0.572		NM		0.675		NM		1.07		NM		0.971		NM		NM		1.07		NM		NM	0.339		NM	
Dissolved oxygen	mg/L		3.87		NM		0.34		NM		0.88		NM		0.61		NM		NM		0.74		NM		NM	3.71		NM	
Oxidation Reduction Potential	mV		-207		NM		-13		NM		-27		NM		-12		NM		NM		-17		NM		NM	168		NM	
pH	pH_units		9.45		NM		6.39		NM		6.95		NM		6.69		NM		NM		6.13		NM		NM	6.79		NM	
Temperature	C		23.25		NM		21.4		NM		17.35		NM		19.9		NM		NM		21.65		NM		NM	20.22		NM	
Turbidity	NTU		1.8		NM		2.1		NM		8.9		NM		3.9		NM		NM		0		NM		NM	6.8		NM	
Water Level at Reading Time	Ft BTOC		NM		NM		NM		NM		NM		NM		NM		NM		NM		NM		NM		NM	NM		NM	
GASES																													
Carbon dioxide	µg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	NA		NA	
Ethane	µg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	NA		NA	
Ethylene	µg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	NA		NA	
Methane	µg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	NA		NA	
GEN CHEMISTRY																													
Ferrous Iron (Iron II)	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	NA		NA	
TOTAL ORGANIC CARBON																													
Total Inorganic Carbon	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	NA		NA	
Total organic carbon	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	NA		NA	
METALS																													
Antimony	mg/L	0.006	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	NA		NA	
Manganese	mg/L	14	NA		NA		NA		0.0183		NA		0.0496		NA		0.0419		0.0405		NA		NA		NA	NA		NA	
VOLATILES																													
1,1-Dichloroethene	µg/L	7	NA		< 1	U	NA		NA		NA		NA		NA		NA		NA		NA		< 1	U	< 1	U	NA		NA	
cis-1,2-Dichloroethene	µg/L	70	NA		< 0.5	U	NA		NA		NA		NA		NA		NA		NA		NA		< 0.5	U	< 0.5	U	NA		NA	
Tetrachloroethene	µg/L	5	NA		< 0.5	U	NA		NA		NA		NA		NA		NA		NA		NA		< 0.5	U	< 0.5	U	NA		NA	
Trichloroethene	µg/L	5	NA		< 0.5	U	NA		NA		NA		NA		NA		NA		NA		NA		< 0.5	U	< 0.5	U	NA		NA	
Vinyl chloride	µg/L	2	NA		< 0.5	U	NA		NA		NA		NA		NA		NA		NA		NA		< 0.5	U	< 0.5	U	NA		NA	

Table 2-3
Surface Water and Groundwater Results RA-O 2013–2021

			Location Code		35BWW04																					
			Sample ID	35BWW04-		35BWW04-		35BWW04-		35BWW04-		35BWW04F-		35BWW04-		35BWW04-		35BWW04-		35BWW04-		35BWW04-081716		35BWW04-		35BWW04-	
			Sample Date	10/3/2013		10/3/2013		10/19/2015		10/19/2015		10/19/2015		12/21/2015		12/21/2015		2/17/2016		2/17/2016		8/17/2016		8/17/2016		11/9/2017		11/9/2017	
			Sample Event	0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0	
			Sample Purpose	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		FD		REG	
Parameter	Units	MCL		Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																													
Bromide	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		0.209		< 0.1	U
Chloride	mg/L			NA		11		NA		NA		NA		NA		NA		NA		NA		NA		11.5		5.82		5.67	
Fluoride	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		0.249		0.244	
Nitrate	mg/L	10		NA		1.06		NA		0.334	J	NA		NA		0.379	J	NA		0.434		NA		0.376	J	0.173		0.187	
Nitrite	mg/L	1		NA		< 0.2	U	NA		NA		NA		NA		NA		NA		NA		NA		< 0.2	U	< 0.1	U	< 0.1	U
Sulfate	mg/L			NA		41.6		NA		43.3		NA		NA		39.6		NA		33.8		NA		35.1		33.8		33.1	
SULFIDE																													
Sulfide	mg/L			NA		< 1	U	NA		NA		NA		NA		NA		NA		NA		NA		< 1	U	< 1	U	< 1	U
DHC																													
Dehalococcoides	cells/mL			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		< 1.7	U
FIELD TESTS																													
Specific conductivity	µmhos/cm			0.257		NM		0.261		NM		NM		0.287		NM		0.309		NM		0.366		NM		NM		0.277	
Dissolved oxygen	mg/L			1.08		NM		1.87		NM		NM		1.32		NM		2.53		NM		0.84		NM		NM		2.2	
Oxidation Reduction Potential	mV			108		NM		170		NM		NM		233		NM		185		NM		449		NM		NM		183.5	
pH	pH_units			6.46		NM		6.13		NM		NM		5.3		NM		5.57		NM		4.17		NM		NM		6.50	
Temperature	C			26.49		NM		22.05		NM		NM		18.84		NM		18		NM		19.21		NM		NM		18.4	
Turbidity	NTU			8.5		NM		38.3		NM		NM		9.3		NM		8.2		NM		49.2		NM		NM		0	
Water Level at Reading Time	Ft BTOC			NM		NM		NM		NM		NM		NM		NM		NM		NM		NM		NM		NM		24.25	
GASES																													
Carbon dioxide	µg/L			NA				NA		NA		NA		NA		NA		NA		NA		NA		1,070,000		35,000		38,000	
Ethane	µg/L			NA		< 2	U	NA		NA		NA		NA		NA		NA		NA		NA		< 2	U	< 0.076	U	< 0.076	U
Ethylene	µg/L			NA		< 2	U	NA		NA		NA		NA		NA		NA		NA		NA		< 2	U	< 0.071	U	< 0.071	U
Methane	µg/L			NA		< 3.17	U	NA		NA		NA		NA		NA		NA		NA		NA		< 2	U	< 0.3	U	0.49	J
GEN CHEMISTRY																													
Ferrous Iron (Iron II)	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		0.18	
TOTAL ORGANIC CARBON																													
Total Inorganic Carbon	mg/L			NA		8.4		NA		NA		NA		NA		NA		NA		NA		NA		76.4		33		40	
Total organic carbon	mg/L			NA		2.01		NA		NA		NA		NA		NA		NA		NA		NA		15.2		1.21		1.12	
METALS																													
Antimony	mg/L	0.006		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Manganese	mg/L	14		NA		NA		NA		0.00111	J	NA		0.00594		NA		0.00612		NA		NA		NA		NA		NA	
VOLATILES																													
1,1-Dichloroethene	µg/L	7		NA		2.3	J	NA		NA		NA		NA		NA		NA		NA		NA		< 1	U	< 1	U	< 1	U
cis-1,2-Dichloroethene	µg/L	70		NA		0.673	J	NA		NA		NA		NA		NA		NA		NA		NA		< 0.5	U	< 1	U	< 1	U
Tetrachloroethene	µg/L	5		NA		66.5	J	NA		NA		NA		NA		NA		NA		NA		NA		6.1		8.2		7.3	
Trichloroethene	µg/L	5		NA		11.4	J	NA		NA		NA		NA		NA		NA		NA		NA		0.786	J	1.1		1	
Vinyl chloride	µg/L	2		NA		< 0.5	U	NA		NA		NA		NA		NA		NA		NA		NA		< 0.5	U	< 1	U	< 1	U

Table 2-3
Surface Water and Groundwater Results RA-O 2013–2021

			Location Code		35BWW04																					
			Sample ID	35BWW04-021418-		35BWW04-		35BWW04-		35BWW04-		35BWW04-		35BWW04-		35BWW04-		35BWW04-		35BWW04-		35BWW04-		35BWW04-		35BWW04-	
			Sample Date	2/14/2018		2/14/2018		5/22/2018		8/22/2018		11/20/2018		11/20/2018		2/13/2019		5/20/2019		8/5/2019		11/21/2019		11/21/2019		5/6/2020		11/10/2020	
			Sample Event	0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0	
			Sample Purpose	FD		REG		REG		REG		REG		FD		REG		REG		REG		FD		REG		REG		REG	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																										
Bromide	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Chloride	mg/L		7.06		6.96		4.87		3.78		3.65		3.66		3.24		2.96		3.17		3.48		3.51		4.52		4.01	
Fluoride	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	10	0.105		0.124		0.099	J	0.049	J	0.1		0.101		0.174		0.174		0.187		0.132		0.145		0.132		0.206	
Nitrite	mg/L	1	< 0.05	U	< 0.05	U	< 0.1	U	< 0.1	U	< 0.1	U	< 0.1	U	< 0.1	U	NA		NA		NA		NA		NA		NA	
Sulfate	mg/L		32.2		31.8		36.5		26.5		25.1		25.5		34.6		22		24		26.5		28.9		26.6		26.1	
SULFIDE																										
Sulfide	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
DHC																										
Dehalococcoides	cells/mL		NA		NA		< 1.2		NA		< 0.5	U	NA		0.4	J	NA		NA		NA		NA		NA		NA	
FIELD TESTS																										
Specific conductivity	µmhos/cm		NM		0.312		0.216		0.398		0.33		NM		0.333		0.327		0.327		NM		0.238		0.289		0.235	
Dissolved oxygen	mg/L		NM		3.03		0		0.33		4.73		NM		1.16		1.98		0.37		NM		0.03		3.1		1.1	
Oxidation Reduction Potential	mV		NM		126.1		411		281		152.7		NM		364		273		262		NM		296		147		212	
pH	pH_units		NM		6.34		5.12		5.17		6.02		NM		5.43		6.39		5.93		NM		5.82		6.38		5.96	
Temperature	C		NM		17.84		18.87		21.26		19.43		NM		15.39		21.46		21.45		NM		19.23		18.36		20.04	
Turbidity	NTU		NM		1.7		58.3		229		0		NM		4.9		3.3		0		NM		39.9		13		1.2	
Water Level at Reading Time	Ft BTOC		NM		NM		22.73		24.3		23.8		NM		21.97		19.15		20.98		NM		23.19		20.82		22.29	
GASES																										
Carbon dioxide	µg/L		43,000		40,000		770,000		500,000	J	NA		NA		800,000	J	670,000		280,000		87,000	J	100,000	J	46,000		94,000	
Ethane	µg/L		< 0.6	U	< 0.6	U	< 0.47	UJ	< 0.47	U	0.238	J	0.574	J	< 0.47	UJ	< 0.47	U	< 0.47	U	< 0.47	U	< 0.47	U	< 0.47	U	< 0.47	U
Ethylene	µg/L		< 1	U	< 1	U	< 0.55	U	< 0.55	U	0.524	J	0.959	J	< 0.55	UJ	< 0.55	U	< 0.55	U	< 0.55	U	< 0.55	U	< 0.55	U	< 0.55	U
Methane	µg/L		< 1.3	U	< 1.3	U	< 1	UJ	< 1	U	2.23		1.82		< 1	UJ	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
GEN CHEMISTRY																										
Ferrous Iron (Iron II)	mg/L		NA		0.06		0.52		0.52		0.05		NA		0		0.33		0.0		NA		0.16		0.68		NA	
TOTAL ORGANIC CARBON																										
Total Inorganic Carbon	mg/L		NA		NA		NA		NA		NA		NA		123		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L		1.52		1.52		1.7		1.73		2.31		2.23		3.81		3.21		2.66	J	1.28		1.17		1.96		0.76	
METALS																										
Antimony	mg/L	0.006	0.000913	J	0.00187	J	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Manganese	mg/L	14	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
VOLATILES																										
1,1-Dichloroethene	µg/L	7	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Tetrachloroethene	µg/L	5	10		10		5.3		2.2		6.3		5.3		5.3		4.7		7.9		7.7		8.3		6.4		5.2	
Trichloroethene	µg/L	5	1.2		1.3		< 0.5	U	< 0.5	U	0.95	J	0.73	J	0.59	J	0.58	J	0.93	J	0.93	J	0.93	J	0.71	J	0.72	J
Vinyl chloride	µg/L	2	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U

Table 2-3
Surface Water and Groundwater Results RA-O 2013–2021

			Location Code	35BWW04		35BWW05																							
			Sample ID	35BWW04-		35BWW05-		35BWW05-		35BWW05-		35BWW05-		35BWW05-		35BWW05F-		35BWW05-		35BWW05-		35BWW05F-		35BWW05-		35BWW05-		35BWW05F-	
			Sample Date	5/13/2021		5/4/2013		5/4/2013		10/4/2013		10/4/2013		10/19/2015		10/19/2015		12/21/2015		12/21/2015		12/21/2015		2/16/2016		2/16/2016		2/16/2016	
			Sample Event	27.85 - 27.85		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0	
			Sample Purpose	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																													
Bromide	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Chloride	mg/L		4.46		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Fluoride	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	10	0.135		NA		NA		NA		NA		NA		0.728		NA		NA		0.897	J	NA		NA		0.862		NA	
Nitrite	mg/L	1	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L		28.6		NA		NA		NA		NA		NA		33.4		NA		NA		37.8		NA		NA		41		NA	
SULFIDE																													
Sulfide	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
DHC																													
Dehalococcoides	cells/mL		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
FIELD TESTS																													
Specific conductivity	µmhos/cm		0.29		0.369		NM		0.237		NM		0.328		NM		NM		0.368		NM		NM		0.356		NM		NM	
Dissolved oxygen	mg/L		4.02		0		NM		0.59		NM		0.13		NM		NM		0.36		NM		NM		0.43		NM		NM	
Oxidation Reduction Potential	mV		189		-54		NM		-146		NM		75		NM		NM		115		NM		NM		129		NM		NM	
pH	pH_units		6.87		6.95		NM		7.06		NM		5.69		NM		NM		5.39		NM		NM		5.24		NM		NM	
Temperature	C		17.87		19.83		NM		25		NM		18.18		NM		NM		19.21		NM		NM		18.39		NM		NM	
Turbidity	NTU		0		47.5		NM		43.3		NM		118		NM		NM		151		NM		NM		214		NM		NM	
Water Level at Reading Time	Ft BTOC		18.7		NM		NM		NM		NM		NM		NM		NM		NM		NM		NM		NM		NM		NM	
GASES																													
Carbon dioxide	µg/L		150,000		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Ethane	µg/L		< 0.47	U	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Ethylene	µg/L		< 0.55	U	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Methane	µg/L		< 1	U	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
GEN CHEMISTRY																													
Ferrous Iron (Iron II)	mg/L		0.36		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
TOTAL ORGANIC CARBON																													
Total Inorganic Carbon	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L		0.96	J	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
METALS																													
Antimony	mg/L	0.006	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Manganese	mg/L	14	NA		NA		NA		NA		NA		NA		NA		0.0541		NA		NA		0.0555		NA		NA		0.0505	
VOLATILES																													
1,1-Dichloroethene	µg/L	7	< 0.5	U	NA		NA		NA		< 1	U	NA		NA		NA		NA		NA		NA		NA		NA		NA	
cis-1,2-Dichloroethene	µg/L	70	< 0.5	U	NA		NA		NA		0.295	J	NA		NA		NA		NA		NA		NA		NA		NA		NA	
Tetrachloroethene	µg/L	5	6.8		NA		NA		NA		1.57		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Trichloroethene	µg/L	5	0.61	J	NA		NA		NA		14		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Vinyl chloride	µg/L	2	< 0.5	U	NA		NA		NA		< 0.5	U	NA		NA		NA		NA		NA		NA		NA		NA		NA	

Table 2-3
Surface Water and Groundwater Results RA-O 2013–2021

Location Code			35BWW05																									
Sample ID			35BWW05-		35BWW05-		35BWW05-		35BWW05-		35BWW05-		35BWW05-		35BWW05-		35BWW05-		35BWW05-		35BWW05-		35BWW05-		35BWW05-		35BWW05-	
Sample Date			8/18/2016		8/18/2016		11/8/2017		2/16/2018		3/27/2018		5/21/2018		8/21/2018		11/18/2018		2/13/2019		5/21/2019		8/6/2019		11/25/2019		5/6/2020		11/9/2020	
Sample Event			0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0	
Sample Purpose			REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																														
Bromide	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Chloride	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Fluoride	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	10	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Nitrite	mg/L	1	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
SULFIDE																														
Sulfide	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
DHC																														
Dehalococcoides	cells/mL		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
FIELD TESTS																														
Specific conductivity	µmhos/cm		0.379		NM		0.338		0.306		0.317		0.213		0.31		0.270		0.324		0.321		0.317		0.251		0.313		0.293	
Dissolved oxygen	mg/L		0.56		NM		0.78		0.65		1.72		0		0.7		1.51		0.56		0.88		0.05		0.03		0.04		0.09	
Oxidation Reduction Potential	mV		283		NM		-0.3		84.6		125.1		269		111		75.1		168		207		116		150		79		254	
pH	pH_units		4.41		NM		6.80		6.73		6.35		5.14		5.29		6.55		6.50		5.12		5.99		5.29		6.10		4.65	
Temperature	C		19.46		NM		18.57		19.51		25.64		23.26		21.27		18.87		18.89		21.94		23.09		20.56		17.51		20.06	
Turbidity	NTU		123		NM		19		0		0		779		657		0		221		139		225		304		208		317	
Water Level at Reading Time	Ft BTOC		NM		NM		24.55		24.15		23.45		23.41		24.85		23.73		22.82		20.72		22.05		23.82		21.84		23.14	
GASES																														
Carbon dioxide	µg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Ethane	µg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Ethylene	µg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Methane	µg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
GEN CHEMISTRY																														
Ferrous Iron (Iron II)	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
TOTAL ORGANIC CARBON																														
Total Inorganic Carbon	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
METALS																														
Antimony	mg/L	0.006	NA		NA		NA		NA		< 0.001	U	NA		NA		NA		NA		NA		NA		NA		NA		NA	
Manganese	mg/L	14	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
VOLATILES																														
1,1-Dichloroethene	µg/L	7	NA		< 1	U	< 1	U	< 0.5	U	NA		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	NA		0.497	J	< 1	U	< 0.5	U	NA		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Tetrachloroethene	µg/L	5	NA		1.25		1.5		2.8		NA		2		1.7		2.7		1.9		1.1		1.9		1.4		2.4		2.1	
Trichloroethene	µg/L	5	NA		8.87		7		10		NA		8.5		7.3		12		9.6		5.5		8.6		6		7.3		5.5	
Vinyl chloride	µg/L	2	NA		< 0.5	U	< 1	U	< 0.5	U	NA		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U

Table 2-3
Surface Water and Groundwater Results RA-O 2013–2021

Location Code			35BWW05		35BWW06																							
Sample ID			35BWW05-		35BWW06-		35BWW06-		35BWW06-		35BWW06FD-		35BWW06-		35BWW06-		35BWW06-		35BWW06-		35BWW06-		35BWW06FD-		35BWW06-		35BWW06-		35BWW06FD-	
Sample Date			5/13/2021		10/4/2013		10/4/2013		10/19/2015		10/19/2015		10/19/2015		12/22/2015		12/22/2015		2/16/2016		2/16/2016		2/16/2016		8/18/2016		8/18/2016		8/18/2016	
Sample Event			33.6 - 33.6		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0	
Sample Purpose			REG		REG		REG		REG		FD		REG		REG		REG		REG		REG		FD		REG		REG		FD	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																														
Bromide	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Chloride	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Fluoride	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	10	NA		NA		NA		NA		< 0.2	U	< 0.2	U	NA		< 0.2	U	NA		< 0.2	U	< 0.2	U	NA		NA		NA	
Nitrite	mg/L	1	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L		NA		NA		NA		NA		161		168		NA		172		NA		146	J	142	J	NA		NA		NA	
SULFIDE																														
Sulfide	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
DHC																														
Dehalococcoides	cells/mL		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
FIELD TESTS																														
Specific conductivity	µmhos/cm		0.331		1.09		NM		1.16		NM		NM		1.24		NM		1.04		NM		NM		1.06		NM		NM	
Dissolved oxygen	mg/L		0.58		0.073		NM		0		NM		NM		0.51		NM		0.71		NM		NM		0.69		NM		NM	
Oxidation Reduction Potential	mV		164		-143		NM		-50		NM		NM		-74		NM		-58		NM		NM		215		NM		NM	
pH	pH_units		5.41		6.98		NM		7.15		NM		NM		6.93		NM		6.45		NM		NM		4.87		NM		NM	
Temperature	C		18.41		23.9		NM		18.93		NM		NM		23.6		NM		19.28		NM		NM		20.45		NM		NM	
Turbidity	NTU		365		5.1		NM		7.9		NM		NM		0		NM		0		NM		NM		6		NM		NM	
Water Level at Reading Time	Ft BTOC		20.12		NM		NM		NM		NM		NM		NM		NM		NM		NM		NM		NM		NM		NM	
GASES																														
Carbon dioxide	µg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Ethane	µg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Ethylene	µg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Methane	µg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
GEN CHEMISTRY																														
Ferrous Iron (Iron II)	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
TOTAL ORGANIC CARBON																														
Total Inorganic Carbon	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
METALS																														
Antimony	mg/L	0.006	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Manganese	mg/L	14	NA		NA		NA		NA		0.148		0.147		NA		0.134		NA		0.176		0.187		NA		NA		NA	
VOLATILES																														
1,1-Dichloroethene	µg/L	7	< 0.5	U	NA		< 1	U	NA		NA		NA		NA		NA		NA		NA		NA		NA		< 1	U	< 1	U
cis-1,2-Dichloroethene	µg/L	70	< 0.5	U	NA		< 0.5	U	NA		NA		NA		NA		NA		NA		NA		NA		NA		< 0.5	U	< 0.5	U
Tetrachloroethene	µg/L	5	2.5		NA		< 0.5	U	NA		NA		NA		NA		NA		NA		NA		NA		NA		< 0.5	U	< 0.5	U
Trichloroethene	µg/L	5	6.3		NA		< 0.5	U	NA		NA		NA		NA		NA		NA		NA		NA		NA		< 0.5	U	< 0.5	U
Vinyl chloride	µg/L	2	< 0.5	U	NA		< 0.5	U	NA		NA		NA		NA		NA		NA		NA		NA		NA		< 0.5	U	< 0.5	U

Table 2-3
Surface Water and Groundwater Results RA-O 2013–2021

Location Code			35BWW06												35BWW07								35BWW07							
Sample ID			35BWW06-		35BWW06-		35BWW06-		35BWW06-		35BWW06-		35BWW06-		35BWW07-		35BWW07-		35BWW07-		35BWW07-		35BWW07-		35BWW07-		35BWW07-	
Sample Date			11/8/2017		2/16/2018		3/27/2018		5/21/2018		8/21/2018		11/18/2018		10/5/2013		10/5/2013		10/20/2015		10/20/2015		12/22/2015		12/22/2015		2/17/2016		2/17/2016	
Sample Event			0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0	
Sample Purpose			REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																														
Bromide	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Chloride	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Fluoride	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	10	NA		NA		NA		NA		NA		NA		NA		NA		NA		< 0.2	U	NA		< 0.2	U	NA		< 0.2	U
Nitrite	mg/L	1	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		94.5		NA		93.1		NA		86.1	
SULFIDE																														
Sulfide	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
DHC																														
Dehalococcoides	cells/mL		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
FIELD TESTS																														
Specific conductivity	µmhos/cm		0.706		0.763		0.751		0.629		0.911		0.928		0.837		NM		0.918		NM		1.02		NM		0.952		NM	
Dissolved oxygen	mg/L		0.8		0.57		0.37		0		0.44		1.15		10.86		NM		-	-	NM		-	-	NM		-	-	NM	
Oxidation Reduction Potential	mV		-11.2		-46.5		-95.6		180		92		-20		187		NM		251		NM		223		NM		258		NM	
pH	pH_units		6.39		7.22		8.34		5.57		5.57		5.82		6.77		NM		6.25		NM		6.05		NM		6.04		NM	
Temperature	C		18.00		19.96		23.01		22.85		22.25		18.58		22.17		NM		17.06		NM		14.93		NM		14.94		NM	
Turbidity	NTU		0		0		0		0		162		0		27.6		NM		9.5		NM		9.4		NM		9.7		NM	
Water Level at Reading Time	Ft BTOC		26.3		26.37		24.9		24.22		25.5		25.51		NM		NM		NM		NM		NM		NM		NM		NM	
GASES																														
Carbon dioxide	µg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Ethane	µg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Ethylene	µg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Methane	µg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
GEN CHEMISTRY																														
Ferrous Iron (Iron II)	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
TOTAL ORGANIC CARBON																														
Total Inorganic Carbon	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
METALS																														
Antimony	mg/L	0.006	NA		NA		0.00128	J	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Manganese	mg/L	14	NA		NA		NA		NA		NA		NA		NA		NA		NA		0.0672		NA		0.0232		NA		0.0641	
VOLATILES																														
1,1-Dichloroethene	µg/L	7	< 1	U	< 0.5	U	NA		< 0.5	U	< 0.5	U	< 0.5	U	NA		< 1	U	NA		NA		NA		NA		NA		NA	
cis-1,2-Dichloroethene	µg/L	70	< 1	U	< 0.5	U	NA		< 0.5	U	< 0.5	U	< 0.5	U	NA		< 0.5	U	NA		NA		NA		NA		NA		NA	
Tetrachloroethene	µg/L	5	< 1	U	< 0.5	U	NA		< 0.5	U	< 0.5	U	< 0.5	U	NA		< 0.5	U	NA		NA		NA		NA		NA		NA	
Trichloroethene	µg/L	5	< 1	U	< 0.5	U	NA		< 0.5	U	< 0.5	U	< 0.5	U	NA		< 0.5	U	NA		NA		NA		NA		NA		NA	
Vinyl chloride	µg/L	2	< 1	U	< 0.5	U	NA		< 0.5	U	< 0.5	U	< 0.5	U	NA		< 0.5	U	NA		NA		NA		NA		NA		NA	

Table 2-3
Surface Water and Groundwater Results RA-O 2013–2021

			Location Code		35BWW07																							
			Sample ID		35BWW07-		35BWW07-		35BWW07-		35BWW07-		35BWW07-		35BWW07-		35BWW07-		35BWW07-		35BWW07-		35BWW07-		35BWW07-		35BWW07-	
			Sample Date		8/19/2016		8/19/2016		11/9/2017		2/13/2018		3/29/2018		5/23/2018		8/20/2018		11/18/2018		2/14/2019		5/22/2019		8/5/2019		11/25/2019		5/11/2020		11/11/2020	
			Sample Event		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0	
			Sample Purpose		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																														
Bromide	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Chloride	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Fluoride	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	10	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Nitrite	mg/L	1	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
SULFIDE																														
Sulfide	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
DHC																														
Dehalococcoides	cells/mL		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
FIELD TESTS																														
Specific conductivity	µmhos/cm		0.974		NM		1.112		1.031		0.931		0.613		0.951		0.938		0.881		0.632		0.659		0.637		0.753		0.689	
Dissolved oxygen	mg/L		-	-	NM		1.86		0.84		0.97		0		0.63		1.18		0.14		0.08		0.11		0.1		0.59		0.16	
Oxidation Reduction Potential	mV		-	-	NM		135.7		94.7		119.1		364		112		77.4		325		268		51		50		158		228	
pH	pH_units		5.22		NM		6.87		6.82		6.16		5.61		6.02		7.01		5.8		5.83		6.89		6.08		6.91		6.54	
Temperature	C		20.47		NM		17.49		14.43		19.00		19.78		27.94		16.82		16.41		21.21		22.05		16.8		17.07		16.86	
Turbidity	NTU		9.6		NM		5.9		0		0		35.3		59.1		0		0		0		0		7.6		16.1		47.4	
Water Level at Reading Time	Ft BTOC		NM		NM		27.9		29.5		28.3		26.33		28.28		29.28		26		25.38		24.12		26.22		24.2		25.42	
GASES																														
Carbon dioxide	µg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Ethane	µg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Ethylene	µg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Methane	µg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
GEN CHEMISTRY																														
Ferrous Iron (Iron II)	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
TOTAL ORGANIC CARBON																														
Total Inorganic Carbon	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
METALS																														
Antimony	mg/L	0.006	NA		NA		NA		NA		< 0.001	U	NA		NA		NA		NA		NA		NA		NA		NA		NA	
Manganese	mg/L	14	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
VOLATILES																														
1,1-Dichloroethene	µg/L	7	NA		< 1	U	< 1	U	< 0.5	U	NA		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	NA		< 0.5	U	< 1	U	< 0.5	U	NA		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Tetrachloroethene	µg/L	5	NA		< 0.5	U	< 1	U	< 0.5	U	NA		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U
Trichloroethene	µg/L	5	NA		< 0.5	U	< 1	U	< 0.5	U	NA		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Vinyl chloride	µg/L	2	NA		< 0.5	U	< 1	U	< 0.5	U	NA		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U

Table 2-3
Surface Water and Groundwater Results RA-O 2013–2021

			Location Code	35BWW07		35BWW08																							
			Sample ID	35BWW07-		35BWW08-		35BWW08-		35BWW08-		35BWW08-		35BWW08-		35BWW08-		35BWW08-		35BWW08-		35BWW08-		35BWW08-		35BWW08-		35BWW08-	
			Sample Date	5/17/2021		5/4/2013		5/4/2013		10/9/2013		10/9/2013		10/20/2015		10/20/2015		12/21/2015		12/21/2015		2/16/2016		2/16/2016		8/17/2016		8/17/2016		11/7/2017	
			Sample Event	25.67 - 25.67		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0	
			Sample Purpose	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL		Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																													
Bromide	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		2.11	
Chloride	mg/L			NA		NA		NA		NA		71.5		NA		NA		NA		NA		NA		NA		NA		11.3	
Fluoride	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		0.53	
Nitrate	mg/L	10		NA		NA		NA		NA		2.3		NA		1.22		NA		0.828	J	NA		0.583		NA		0.392	J	< 0.1	U
Nitrite	mg/L	1		NA		NA		NA		NA		< 0.2	U	NA		NA		NA		NA		NA		NA		NA		< 0.2	U	< 0.1	U
Sulfate	mg/L			NA		NA		NA		NA		115		NA		118		NA		84.1		NA		92.7		NA		73.2		62.3	
SULFIDE																													
Sulfide	mg/L			NA		NA		NA		NA		< 1	U	NA		NA		NA		NA		NA		NA		NA		< 1	U	6.88	
DHC																													
Dehalococcoides	cells/mL			NA		NA		NA		NA		7.1	U	NA		NA		NA		NA		NA		NA		NA		NA		< 0.5	U
FIELD TESTS																													
Specific conductivity	µmhos/cm			0.602		0.884		NM		0.647		NM		0.56		NM		0.512		NM		0.594		NM		0.583		NM		0.408	
Dissolved oxygen	mg/L			0.38		0		NM		1.06		NM		4.05		NM		4.35		NM		1.85		NM		1.81		NM		3.2	
Oxidation Reduction Potential	mV			-34		170		NM		99		NM		71		NM		57		NM		258		NM		413		NM		176.5	
pH	pH_units			6.75		6.83		NM		6.86		NM		8.97		NM		8.64		NM		5.43		NM		4.6		NM		8.00	
Temperature	C			20.86		18.62		NM		19.48		NM		25.04		NM		20.31		NM		18.31		NM		19.79		NM		20.51	
Turbidity	NTU			58.2		0		NM		1.1		NM		8.1		NM		8.4		NM		3.3		NM		2.5		NM		0	
Water Level at Reading Time	Ft BTOC			22.8		NM		NM		NM		NM		NM		NM		NM		NM		NM		NM		NM		NM		26	
GASES																													
Carbon dioxide	µg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		767,000		2,200	
Ethane	µg/L			NA		NA		NA		NA		< 2	U	NA		NA		NA		NA		NA		NA		NA		< 2	U	< 0.076	U
Ethylene	µg/L			NA		NA		NA		NA		< 2	U	NA		NA		NA		NA		NA		NA		NA		< 2	U	< 0.071	U
Methane	µg/L			NA		NA		NA		NA		< 3.39	U	NA		NA		NA		NA		NA		NA		NA		< 2	U	< 0.3	U
GEN CHEMISTRY																													
Ferrous Iron (Iron II)	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		0.12	
TOTAL ORGANIC CARBON																													
Total Inorganic Carbon	mg/L			NA		NA		NA		NA		28.7		NA		NA		NA		NA		NA		NA		NA		33.1		34	
Total organic carbon	mg/L			NA		NA		NA		NA		4.19		NA		NA		NA		NA		NA		NA		NA		7.18	J	0.875	J
METALS																													
Antimony	mg/L	0.006		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Manganese	mg/L	14		NA		NA		NA		NA		NA		NA		0.00292	J	NA		0.00277	J	NA		0.00718		NA		NA		NA	
VOLATILES																													
1,1-Dichloroethene	µg/L	7		< 0.5	U	NA		NA		NA		< 1	U	NA		NA		NA		NA		NA		NA		NA		< 1	U	< 1	U
cis-1,2-Dichloroethene	µg/L	70		< 0.5	U	NA		NA		NA		< 0.5	U	NA		NA		NA		NA		NA		NA		NA		< 0.5	U	< 1	U
Tetrachloroethene	µg/L	5		< 1	U	NA		NA		NA		< 0.5	U	NA		NA		NA		NA		NA		NA		NA		< 0.5	U	< 1	U
Trichloroethene	µg/L	5		< 0.5	U	NA		NA		NA		43.8		NA		NA		NA		NA		NA		NA		NA		1.01		0.89	J
Vinyl chloride	µg/L	2		< 0.5	U	NA		NA		NA		< 0.5	U	NA		NA		NA		NA		NA		NA		NA		< 0.5	U	< 1	U

Table 2-3
Surface Water and Groundwater Results RA-O 2013–2021

Location Code			35BWW08																						35BWW09			
Sample ID			35BWW08-		35BWW08-		35BWW08-		35BWW08-		35BWW08-		35BWW08-		35BWW08-		35BWW08-		35BWW08-		35BWW08-		35BWW08-		35BWW09-		35BWW09-	
Sample Date			2/14/2018		5/23/2018		8/22/2018		11/20/2018		2/12/2019		5/20/2019		8/5/2019		11/21/2019		5/6/2020		11/11/2020		11/11/2020		5/13/2021		10/8/2013		10/8/2013	
Sample Event			0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		29.72 - 29.72		0 - 0		0 - 0	
Sample Purpose			REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		FD		REG		REG		REG	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																														
Bromide	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Chloride	mg/L		11.2		12.2		10.3		9.14		7.22		4.57		2.43		6.66		2.38		4.56		4.72		1.25		NA		NA	
Fluoride	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	10	0.465		0.265		0.311		0.169		0.206		0.185		0.18		0.301		0.137		0.215	J-	0.226	J-	0.0796	J	NA		NA	
Nitrite	mg/L	1	< 0.05	U	0.04	J	< 0.1	U	< 0.1	U	< 0.1	U	NA		NA		NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L		55.8		51		64.4		36.2		27.4		19.3		17		30.1		15.9		24.7		24.9		12.6		NA		NA	
SULFIDE																														
Sulfide	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
DHC																														
Dehalococcoides	cells/mL		NA		< 0.5		NA		0.2	J	< 0.5	U	NA		NA		NA		NA		NA		NA		NA		NA		NA	
FIELD TESTS																														
Specific conductivity	µmhos/cm		0.418		0.318		0.481		0.343		0.318		0.497		0.391		0.344		0.302		0.313		NM		0.257		1.02		NM	
Dissolved oxygen	mg/L		3.2		0.58		1.6		4.57		3.76		1.18		1.65		1.61		4.66		1.2		NM		2.31		0.74		NM	
Oxidation Reduction Potential	mV		25.5		380		236		66.5		245		289		212		268		102		277		NM		231		-13		NM	
pH	pH_units		9.06		5.53		5.49		9.92		9.54		5.83		7.57		6.84		7.15		5.19		NM		5.37		7.06		NM	
Temperature	C		18.93		19.68		22.64		19		18.19		21.98		24.59		20.95		23.76		18.90		NM		17.59		20.45		NM	
Turbidity	NTU		0		0.8		42.8		0		10.5		0		19.1		44.2		52.4		20.6		NM		20.1		0.6		NM	
Water Level at Reading Time	Ft BTOC		25.31		24.63		25.95		24.7		23.89		21.64		20.72		24.97		22.87		24.34		NM		21.12		NM		NM	
GASES																														
Carbon dioxide	µg/L		< 1,000	U	580,000		350,000	J	NA		390	J	610,000		15,000		14,000	J	11,000		590,000	J	470,000		680,000		NA		NA	
Ethane	µg/L		< 0.6	U	< 0.47	U	< 0.47	U	< 1	U	< 0.16	U	< 0.47	U	< 0.47	U	< 0.47	U	< 0.47	U	< 0.47	U	< 0.47	U	< 0.47	UJ	NA		NA	
Ethylene	µg/L		< 1	U	< 0.55	U	< 0.55	U	2.31		< 0.24	U	< 0.55	U	< 0.55	U	< 0.55	U	< 0.55	U	< 0.55	U	< 0.55	U	< 0.55	U	NA		NA	
Methane	µg/L		< 1.3	U	< 1	U	< 1	U	1.82		< 0.51	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	UJ	NA		NA	
GEN CHEMISTRY																														
Ferrous Iron (Iron II)	mg/L		0.05		0		0.00		0.0		0.02		0.29		0		0.32		0.81		NA		NA		0.74		NA		NA	
TOTAL ORGANIC CARBON																														
Total Inorganic Carbon	mg/L		NA		NA		NA		NA		33		NA		NA		NA		NA								NA		NA	
Total organic carbon	mg/L		0.87	J	0.812	J	0.854	J	0.87		0.86		1.83		2.5		0.73		1.14	J	0.99		0.74		0.928	J	NA		NA	
METALS																														
Antimony	mg/L	0.006	< 0.001	U	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Manganese	mg/L	14	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
VOLATILES																														
1,1-Dichloroethene	µg/L	7	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	NA		< 1	U
cis-1,2-Dichloroethene	µg/L	70	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	NA		0.529	J
Tetrachloroethene	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U	< 1	U	< 1	U	NA		< 0.5	U
Trichloroethene	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	NA		49	
Vinyl chloride	µg/L	2	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	NA		< 0.5	U

Table 2-3
Surface Water and Groundwater Results RA-O 2013–2021

Location Code			35BWW09																									
Sample ID			35BWW09-		35BWW09-		35BWW09-		35BWW09-		35BWW09-		35BWW09-		35BWW09-		35BWW09-		35BWW09-		35BWW09-		35BWW09-		35BWW09-		35BWW09-	
Sample Date			10/19/2015		10/19/2015		12/22/2015		12/22/2015		2/17/2016		2/17/2016		8/16/2016		8/16/2016		11/7/2017		2/13/2018		3/20/2018		5/21/2018		8/16/2018		11/19/2018	
Sample Event			0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0	
Sample Purpose			REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																														
Bromide	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Chloride	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Fluoride	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	10	NA		< 0.2	U	NA		< 0.2	U	NA		< 0.2	U	NA		NA		NA		NA		NA		NA		NA		NA	
Nitrite	mg/L	1	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L		NA		148		NA		153	J	NA		165		NA		NA		NA		NA		NA		NA		NA		NA	
SULFIDE																														
Sulfide	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
DHC																														
Dehalococcoides	cells/mL		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
FIELD TESTS																														
Specific conductivity	µmhos/cm		0.779		NM		0.841		NM		0.861		NM		0.927		NM		0.776		0.926		0.850		0.591		0.534		0.754	
Dissolved oxygen	mg/L		0.23		NM		0.33		NM		0.44		NM		0.62		NM		0.59		0.48		2.09		0		0.61		1.14	
Oxidation Reduction Potential	mV		172		NM		184		NM		135		NM		365		NM		-38.6		41.9		139.1		355		214		118	
pH	pH_units		7.01		NM		5.59		NM		5.39		NM		4.6		NM		6.68		7.15		6.33		5.47		6.02		7.07	
Temperature	C		21.49		NM		21.55		NM		18.75		NM		20.59		NM		19.63		15.12		22.68		19.50		31.29		16.94	
Turbidity	NTU		8.5		NM		0		NM		0		NM		4.1		NM		18.5		0		0		0		72.6		0	
Water Level at Reading Time	Ft BTOC		NM		NM		NM		NM		NM		NM		NM		NM		26.56		26.53		22.68		25.75		26.91		25.8	
GASES																														
Carbon dioxide	µg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Ethane	µg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Ethylene	µg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Methane	µg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
GEN CHEMISTRY																														
Ferrous Iron (Iron II)	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
TOTAL ORGANIC CARBON																														
Total Inorganic Carbon	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
METALS																														
Antimony	mg/L	0.006	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		< 0.001	U	NA		NA		NA	
Manganese	mg/L	14	NA		0.146		NA		0.0558		NA		0.0548		NA		NA		NA		NA		NA		NA		NA		NA	
VOLATILES																														
1,1-Dichloroethene	µg/L	7	NA		NA		NA		NA		NA		NA		NA		< 1	U	0.84	J	< 0.5	U	NA		< 0.5	U	< 0.5	U	0.78	J
cis-1,2-Dichloroethene	µg/L	70	NA		NA		NA		NA		NA		NA		NA		0.759	J	1.7		< 0.5	U	NA		0.96	J	0.84	J	1.9	
Tetrachloroethene	µg/L	5	NA		NA		NA		NA		NA		NA		NA		< 0.5	U	< 1	U	< 0.5	U	NA		< 0.5	U	< 0.5	U	< 0.5	U
Trichloroethene	µg/L	5	NA		NA		NA		NA		NA		NA		NA		149		180		180		NA		240		180		580	
Vinyl chloride	µg/L	2	NA		NA		NA		NA		NA		NA		NA		< 0.5	U	< 1	U	< 0.5	U	NA		< 0.5	U	< 0.5	U	0.6	J

Table 2-3
Surface Water and Groundwater Results RA-O 2013–2021

Location Code			35BWW09														35BWW10											
Sample ID			35BWW09-		35BWW09-		35BWW09-		35BWW09-		35BWW09-		35BWW09-		35BWW09-		35BWW10-		35BWW10FD-		35BWW10-		35BWW10-		35BWW10-		35BWW10-	
Sample Date			2/13/2019		5/21/2019		8/5/2019		11/26/2019		5/11/2020		11/9/2020		5/17/2021		10/4/2013		10/4/2013		10/4/2013		8/18/2016		8/18/2016		11/7/2017		2/16/2018	
Sample Event			0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		32.01 - 32.01		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0	
Sample Purpose			REG		REG		REG		REG		REG		REG		REG		REG		FD		REG		REG		REG		REG		REG	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																														
Bromide	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Chloride	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Fluoride	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	10	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Nitrite	mg/L	1	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
SULFIDE																														
Sulfide	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
DHC																														
Dehalococcoides	cells/mL		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
FIELD TESTS																														
Specific conductivity	µmhos/cm		0.693		0.638		0.533		0.437		0.513		0.391		0.479		0.309		NM		NM		0.399		NM		0.318		0.357	
Dissolved oxygen	mg/L		1.01		0.05		0.82		0.69		0.4		0.1		1.06		1.38		NM		NM		0.52		NM		0.69		0.45	
Oxidation Reduction Potential	mV		273		296		229		195		151		162		221		96		NM		NM		328		NM		86.2		57.3	
pH	pH_units		6.63		5.60		7.39		6.84		7.65		6.83		6.38		7.24		NM		NM		4.59		NM		7.02		7.18	
Temperature	C		18.35		20.88		22.02		19.84		18.38		22.82		21.77		26.2		NM		NM		23.33		NM		19.85		20.92	
Turbidity	NTU		0		0		3.3		12.8		2.1		18.6		0.5		20.2		NM		NM		371		NM		0		0	
Water Level at Reading Time	Ft BTOC		25		23.05		24.14		26.03		23.86		25.39		22.47		NM		NM		NM		NM		NM		25.5		24.95	
GASES																														
Carbon dioxide	µg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Ethane	µg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Ethylene	µg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Methane	µg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
GEN CHEMISTRY																														
Ferrous Iron (Iron II)	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
TOTAL ORGANIC CARBON																														
Total Inorganic Carbon	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
METALS																														
Antimony	mg/L	0.006	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Manganese	mg/L	14	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
VOLATILES																														
1,1-Dichloroethene	µg/L	7	< 0.5	U	5.5		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	NA		< 1	U	< 1	U	NA		< 1	U	< 1	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	1.1		1.8		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	NA		< 0.5	U	< 0.5	U	NA		< 0.5	U	< 1	U	< 0.5	U
Tetrachloroethene	µg/L	5	< 0.5	U	41		< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 1	U	NA		4.52		4.45		NA		21		31		29	
Trichloroethene	µg/L	5	410		20		70	J	47		42		23		13		NA		56.9		56.3		NA		23.9		33		39	
Vinyl chloride	µg/L	2	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	NA		< 0.5	U	< 0.5	U	NA		< 0.5	U	< 1	U	< 0.5	U

Table 2-3
Surface Water and Groundwater Results RA-O 2013–2021

			Location Code		35BWW10																		35BWW11					
			Sample ID		35BWW10-		35BWW10-		35BWW10-		35BWW10-		35BWW10-		35BWW10-		35BWW10-		35BWW10-		35BWW10-		35BWW11-		35BWW11-		35BWW11-	
			Sample Date		3/27/2018		5/24/2018		8/17/2018		11/18/2018		2/12/2019		5/20/2019		8/6/2019		11/26/2019		5/6/2020		11/9/2020		5/13/2021		10/8/2013		10/8/2013		10/19/2015	
			Sample Event		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		28.62 - 28.62		0 - 0		0 - 0		0 - 0	
			Sample Purpose		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																																
Bromide	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Chloride	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Fluoride	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	10	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Nitrite	mg/L	1	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
SULFIDE																																
Sulfide	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
DHC																																
Dehalococcoides	cells/mL		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
FIELD TESTS																																
Specific conductivity	µmhos/cm		0.354		0.245		0.366		0.365		0.37		0.344		0.293		0.258		0.281		0.220		0.219		0.518		NM		0.467			
Dissolved oxygen	mg/L		0.5		0		1.11		0.58		0.08		0.56		1.57		2.51		1.51		0.7		1.21		1.3		NM		0.12			
Oxidation Reduction Potential	mV		118.1		379		208		62.1		312		283		227		237		101		248		243		-59		NM		41			
pH	pH_units		6.53		5.43		7.16		7.24		7.27		5.48		7.26		6.78		6.73		4.84		5.49		6.44		NM		6.61			
Temperature	C		23.12		20.15		26.58		19.33		19.68		23.47		22.07		20.24		17.72		20.37		18.29		19.55		NM		21.53			
Turbidity	NTU		0		88.3		277		0		40.7		182		216		153		116		173		167		2.1		NM		8.2			
Water Level at Reading Time	Ft BTOC		24.28		24.38		25.63		24.34		23.55		21.26		22.92		24.69		22.53		23.96		20.7		NM		NM		NM			
GASES																																
Carbon dioxide	µg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA			
Ethane	µg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA			
Ethylene	µg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA			
Methane	µg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA			
GEN CHEMISTRY																																
Ferrous Iron (Iron II)	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA			
TOTAL ORGANIC CARBON																																
Total Inorganic Carbon	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA			
Total organic carbon	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA			
METALS																																
Antimony	mg/L	0.006	< 0.001	U	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA			
Manganese	mg/L	14	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA			
VOLATILES																																
1,1-Dichloroethene	µg/L	7	NA		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	NA		< 1	U	NA			
cis-1,2-Dichloroethene	µg/L	70	NA		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	NA		< 0.5	U	NA			
Tetrachloroethene	µg/L	5	NA		30		24		45		37		5.5		1.6		0.84	J	< 1	U	< 0.5	U	< 1	U	NA		0.252	J	NA			
Trichloroethene	µg/L	5	NA		36		28		53		50		9.4		2.6		0.9	J	0.64	J	< 0.5	U	< 0.5	U	NA		< 0.5	U	NA			
Vinyl chloride	µg/L	2	NA		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	NA		< 0.5	U	NA			

Table 2-3
Surface Water and Groundwater Results RA-O 2013–2021

Location Code			35BWW11																									
Sample ID			35BWW11-		35BWW11-		35BWW11-		35BWW11-		35BWW11-		35BWW11-		35BWW11-		35BWW11-		35BWW11-		35BWW11-		35BWW11-		35BWW11-		35BWW11-	
Sample Date			10/19/2015		12/22/2015		12/22/2015		2/16/2016		2/16/2016		8/18/2016		8/18/2016		11/8/2017		2/12/2018		3/27/2018		5/21/2018		8/17/2018		11/18/2018		2/13/2019	
Sample Event			0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0	
Sample Purpose			REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																														
Bromide	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Chloride	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Fluoride	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	10	< 0.2	U	NA		< 0.2	U	NA		< 0.2	U	NA		NA		NA		NA		NA		NA		NA		NA		NA	
Nitrite	mg/L	1	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L		62.7	J	NA		36.1		NA		37.6		NA		NA		NA		NA		NA		NA		NA		NA		NA	
SULFIDE																														
Sulfide	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
DHC																														
Dehalococcoides	cells/mL		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
FIELD TESTS																														
Specific conductivity	µmhos/cm		NM		0.384		NM		0.35		NM		0.477		NM		0.586		0.595		0.471		0.306		0.333		0.446		0.348	
Dissolved oxygen	mg/L		NM		1.01		NM		1.17		NM		0.58		NM		0.77		0.82		1.31		0		0.48		0.68		0.27	
Oxidation Reduction Potential	mV		NM		197		NM		204		NM		388		NM		93		20.9		195.8		342		170		103.5		358	
pH	pH_units		NM		5.66		NM		5.28		NM		4.53		NM		6.17		6.95		5.68		5.71		6.33		6.44		5.80	
Temperature	C		NM		14.93		NM		20.42		NM		21.93		NM		17.78		14.99		24.14		23.02		27.66		18.71		17.81	
Turbidity	NTU		NM		9.2		NM		0		NM		0		NM		66.8		0		0		0		66.7		0		0	
Water Level at Reading Time	Ft BTOC		NM		NM		NM		NM		NM		NM		NM		24.85		24.55		23.16		22.85		24.69		23.38		21.72	
GASES																														
Carbon dioxide	µg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Ethane	µg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Ethylene	µg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Methane	µg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
GEN CHEMISTRY																														
Ferrous Iron (Iron II)	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
TOTAL ORGANIC CARBON																														
Total Inorganic Carbon	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
METALS																														
Antimony	mg/L	0.006	NA		NA		NA		NA		NA		NA		NA		NA		NA		< 0.001	U	NA		NA		NA		NA	
Manganese	mg/L	14	0.226	J	NA		0.0214		NA		0.0148		NA		NA		NA		NA		NA		NA		NA		NA		NA	
VOLATILES																														
1,1-Dichloroethene	µg/L	7	NA		NA		NA		NA		NA		NA		< 1	U	< 1	U	< 0.5	U	NA		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	NA		NA		NA		NA		NA		NA		< 0.5	U	< 1	U	< 0.5	U	NA		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Tetrachloroethene	µg/L	5	NA		NA		NA		NA		NA		NA		0.798	J	< 1	U	< 0.5	U	NA		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Trichloroethene	µg/L	5	NA		NA		NA		NA		NA		NA		< 0.5	U	< 1	U	< 0.5	U	NA		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Vinyl chloride	µg/L	2	NA		NA		NA		NA		NA		NA		< 0.5	U	< 1	U	< 0.5	U	NA		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U

Table 2-3
Surface Water and Groundwater Results RA-O 2013–2021

Location Code			35BWW11												35BWW12													
Sample ID			35BWW11-		35BWW11-		35BWW11-		35BWW11-		35BWW11-		35BWW11-		35BWW12-		35BWW12-		35BWW12-		35BWW12F-		35BWW12-		35BWW12F-		35BWW12-	
Sample Date			5/21/2019		8/7/2019		11/21/2019		5/6/2020		11/9/2020		5/17/2021		10/3/2013		10/3/2013		10/19/2015		10/19/2015		10/19/2015		12/22/2015		12/22/2015		12/22/2015	
Sample Event			0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		32.16 - 32.16		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0	
Sample Purpose			REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																												
Bromide	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Chloride	mg/L		NA		NA		NA		NA		NA		NA		NA		10.5		NA		NA		NA		NA		NA	
Fluoride	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	10	NA		NA		NA		NA		NA		NA		NA		< 0.2	U	NA		< 0.2	U	NA		NA		< 0.2	U
Nitrite	mg/L	1	NA		NA		NA		NA		NA		NA		NA		< 0.2	U	NA		NA		NA		NA		NA	
Sulfate	mg/L		NA		NA		NA		NA		NA		NA		NA		38.5		NA		37.5		NA		NA		38.9	
SULFIDE																												
Sulfide	mg/L		NA		NA		NA		NA		NA		NA		NA		< 1	U	NA		NA		NA		NA		NA	
DHC																												
Dehalococcoides	cells/mL		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
FIELD TESTS																												
Specific conductivity	µmhos/cm		0.385		0.339		0.326		0.381		0.296		0.384		0.322		NM		0.349		NM		NM		0.392		NM	
Dissolved oxygen	mg/L		0.05		0.04		0.05		0.08		0.15		0.16		0.68		NM		0.28		NM		NM		2.65		NM	
Oxidation Reduction Potential	mV		220		216		116		120		188		265		119		NM		175		NM		NM		202		NM	
pH	pH_units		5.86		6.46		6.07		6.17		5.85		6.58		5.98		NM		6.3		NM		NM		6.16		NM	
Temperature	C		24.08		22.21		21.05		19.70		22.38		20.93		21.72		NM		21.99		NM		NM		15.3		NM	
Turbidity	NTU		0		0		5.7		22.8		15.9		0		42		NM		164		NM		NM		184		NM	
Water Level at Reading Time	Ft BTOC		18.76		19.88		23.5		20.37		22.75		18.3		NM		NM		NM		NM		NM		NM		NM	
GASES																												
Carbon dioxide	µg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Ethane	µg/L		NA		NA		NA		NA		NA		NA		NA		< 2	U	NA		NA		NA		NA		NA	
Ethylene	µg/L		NA		NA		NA		NA		NA		NA		NA		< 2	U	NA		NA		NA		NA		NA	
Methane	µg/L		NA		NA		NA		NA		NA		NA		NA		< 6.83		NA		NA		NA		NA		NA	
GEN CHEMISTRY																												
Ferrous Iron (Iron II)	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
TOTAL ORGANIC CARBON																												
Total Inorganic Carbon	mg/L		NA		NA		NA		NA		NA		NA		NA		14.9		NA		NA		NA		NA		NA	
Total organic carbon	mg/L		NA		NA		NA		NA		NA		NA		NA		3.2		NA		NA		NA		NA		NA	
METALS																												
Antimony	mg/L	0.006	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Manganese	mg/L	14	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		0.0054		NA		0.0219	
VOLATILES																												
1,1-Dichloroethene	µg/L	7	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	NA		< 1	U	NA		NA		NA		NA		NA	
cis-1,2-Dichloroethene	µg/L	70	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	NA		< 0.5	U	NA		NA		NA		NA		NA	
Tetrachloroethene	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 1	U	NA		15.3		NA		NA		NA		NA		NA	
Trichloroethene	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	NA		2.04		NA		NA		NA		NA		NA	
Vinyl chloride	µg/L	2	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	NA		< 0.5	U	NA		NA		NA		NA		NA	

Table 2-3
Surface Water and Groundwater Results RA-O 2013–2021

Location Code			35BWW12																									
Sample ID			35BWW12-2/17/2016		35BWW12-2/17/2016		35BWW12F-2/17/2016		35BWW12-8/17/2016		35BWW12-8/17/2016		35BWW12-11/9/2017		35BWW12-2/14/2018		35BWW12-5/23/2018		35BWW12-5/23/2018		35BWW12-8/22/2018		35BWW12-8/22/2018		35BWW12-11/20/2018		35BWW12-2/13/2019		35BWW12-2/13/2019	
Sample Date																												
Sample Event			0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0	
Sample Purpose			REG		REG		REG		REG		REG		REG		REG		FD		REG		REG		FD		REG		REG		FD	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																												
Bromide	mg/L		NA		NA		NA		NA		NA		0.086	J	NA		NA		NA		NA		NA		NA		NA		NA	
Chloride	mg/L		NA		NA		NA		NA		12.9		10.8		9.3		9.68		9.08		8.4		8.14		8.19		9.37		9.61	
Fluoride	mg/L		NA		NA		NA		NA		NA		0.159		NA		NA		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	10	NA		< 0.2	U	NA		NA		< 0.2	U	0.161		< 0.05	U	< 0.1	U	< 0.1	U	< 0.1	U	< 0.1	U	0.076	J	< 0.1	U	< 0.1	U
Nitrite	mg/L	1	NA		NA		NA		NA		< 0.2	U	0.032	J	< 0.05	U	< 0.1	U	< 0.1	U	< 0.1	U	< 0.1	U	< 0.1	U	< 0.1	U	< 0.1	U
Sulfate	mg/L		NA		37.4		NA		NA		42		48.5		46.5		58.6		48.7		47.2		44.8		43.6		49.1		47.8	
SULFIDE																												
Sulfide	mg/L		NA		NA		NA		NA		< 1	U	7.56		NA		NA		NA		NA		NA		NA		NA		NA	
DHC																												
Dehalococcoides	cells/mL		NA		NA		NA		NA		NA		< 0.5	U	NA		NA		< 3.3		NA		NA		1.3		< 0.5	U	NA	
FIELD TESTS																												
Specific conductivity	µmhos/cm		0.363		NM		NM		0.458		NM		0.402		0.431		NM		0.277		0.46		NM		0.414		0.415		NM	
Dissolved oxygen	mg/L		0.41		NM		NM		0.44		NM		0.79		0.51		NM		0		0.25		NM		1.57		0.1		NM	
Oxidation Reduction Potential	mV		231		NM		NM		439		NM		151		122.8		NM		374		201		NM		140.6		353		NM	
pH	pH_units		5.51		NM		NM		4.42		NM		6		6.39		NM		5.29		5.53		NM		6.37		5.60		NM	
Temperature	C		19.22		NM		NM		18.85		NM		18.19		17.98		NM		20.41		21.30		NM		18.95		15.27		NM	
Turbidity	NTU		161		NM		NM		829		NM		0		5.4		NM		729		356		NM		0		134		NM	
Water Level at Reading Time	Ft BTOC		NM		NM		NM		NM		NM		23.3		22.44		NM		21.55		23.19		NM		21.93		20.76		NM	
GASES																												
Carbon dioxide	µg/L		NA		NA		NA		NA		723,000		53,000		61,000	J	570,000		700,000		320,000	J	340,000	J	NA		570,000		640,000	
Ethane	µg/L		NA		NA		NA		NA		< 2	U	< 0.076	U	< 0.6	U	< 0.47	U	< 0.47	U	< 0.47	U	< 0.47	U	< 1	U	< 0.47	U	< 0.47	U
Ethylene	µg/L		NA		NA		NA		NA		< 2	U	< 0.071	U	< 1	U	< 0.55	U	< 0.55	U	< 0.55	U	< 0.55	U	2		< 0.55	U	< 0.55	U
Methane	µg/L		NA		NA		NA		NA		1.11	J	0.91	J	0.52	J	0.8	J	0.83	J	< 0.73	UB	< 0.73	UB	1.7		< 1.2	U	< 1.3	U
GEN CHEMISTRY																												
Ferrous Iron (Iron II)	mg/L		NA		NA		NA		NA		NA		0.24		0.26		NA		3.3		0.91		NA		0		0.78		NA	
TOTAL ORGANIC CARBON																												
Total Inorganic Carbon	mg/L		NA		NA		NA		NA		55.1		47	J	NA		NA		NA		NA		NA		NA		103		132	
Total organic carbon	mg/L		NA		NA		NA		NA		10.7		0.669	J	0.812	J	0.969	J	0.985	J	0.754	J	0.851	J	0.89		1.63		2.48	
METALS																												
Antimony	mg/L	0.006	NA		NA		NA		NA		NA		NA		< 0.001	U	NA		NA		NA		NA		NA		NA		NA	
Manganese	mg/L	14	NA		NA		0.00552		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
VOLATILES																												
1,1-Dichloroethene	µg/L	7	NA		NA		NA		NA		< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	NA		NA		NA		NA		< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Tetrachloroethene	µg/L	5	NA		NA		NA		NA		4.06		4.8		7.1		7		6.2		7.3		7.6		8.7		8		8.2	
Trichloroethene	µg/L	5	NA		NA		NA		NA		0.473	J	0.62	J	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	0.92	J	0.91	J	0.88	J
Vinyl chloride	µg/L	2	NA		NA		NA		NA		< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U

Table 2-3
Surface Water and Groundwater Results RA-O 2013–2021

			Location Code	35BWW12																		35BWW13							
			Sample ID	35BWW12-		35BWW12-		35BWW12-		35BWW12-		35BWW12-		35BWW12-		35BWW12-		35BWW12-		35BWW12-		35BWW13-		35BWW13-		35BWW13-		35BWW13F-	
			Sample Date	5/21/2019		5/21/2019		8/5/2019		8/5/2019		11/25/2019		5/6/2020		5/6/2020		11/11/2020		5/18/2021		5/18/2021		10/7/2013		10/7/2013		10/20/2015		10/20/2015	
			Sample Event	0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		30.3 - 30.3		30.3 - 30.3		0 - 0		0 - 0		0 - 0		0 - 0	
			Sample Purpose	REG		FD		REG		FD		REG		REG		FD		REG		REG		FD		REG		REG		REG		REG	
Parameter	Units	MCL		Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																															
Bromide	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Chloride	mg/L			6.61		6.37		5.65		6.1		7.05		7.21		7.23		6.25		6.69		6.61		NA		NA		NA		NA	
Fluoride	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	10		0.104		< 0.1	U	< 0.1	U	< 0.1	U	< 0.1	U	< 0.1	U	< 0.1	U	0.0318	J-	< 0.1	UJ	< 0.1	UJ	NA		NA		NA		NA	
Nitrite	mg/L	1		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L			39.9		38.4		33.8		37.6		37.1		41.2		39.4		35.9		34.2		33.8		NA		NA		NA		NA	
SULFIDE																															
Sulfide	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
DHC																															
Dehalococcoides	cells/mL			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
FIELD TESTS																															
Specific conductivity	µmhos/cm			0.353		NM		0.296		NM		0.275		0.355		NM		0.263		0.317		NM		0.113		NM		0.112		NM	
Dissolved oxygen	mg/L			0.06		NM		0.22		NM		0.03		0.04		NM		0.14		0.44		NM		1.18		NM		1.95		NM	
Oxidation Reduction Potential	mV			256		NM		205		NM		137		142		NM		285		228		NM		230		NM		349		NM	
pH	pH_units			5.35		NM		6.35		NM		6.17		6.19		NM		4.85		6.51		NM		5.11		NM		4		NM	
Temperature	C			27.98		NM		24.24		NM		20.18		18.59		NM		17.98		18.45		NM		18.45		NM		23.62		NM	
Turbidity	NTU			134		NM		80.8		NM		158		100		NM		295		141		NM		101		NM		718		NM	
Water Level at Reading Time	Ft BTOC			18.02		NM		19.74		NM		21.97		20.53		NM		21.22		17.45		NM		NM		NM		NM		NM	
GASES																															
Carbon dioxide	µg/L			590,000		580,000		140,000		140,000		73,000	J	94,000		88,000		600,000	J	480,000		500,000		NA		NA		NA		NA	
Ethane	µg/L			< 0.47	U	< 0.47	U	< 0.47	U	< 0.47	U	< 0.47	U	< 0.47	U	< 0.47	U	< 0.47	U	< 0.47	U	< 0.47	U	NA		NA		NA		NA	
Ethylene	µg/L			< 0.55	U	< 0.55	U	< 0.55	U	< 0.55	U	< 0.55	U	< 0.55	U	< 0.55	U	< 0.55	U	< 0.55	U	< 0.55	U	NA		NA		NA		NA	
Methane	µg/L			< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	0.93	J	0.81	J	< 1	UJ	< 1	U	< 1	U	NA		NA		NA		NA	
GEN CHEMISTRY																															
Ferrous Iron (Iron II)	mg/L			3.30		NA		0.78		NA		0.66		0.94		NA		NA		1.22		NA		NA		NA		NA		NA	
TOTAL ORGANIC CARBON																															
Total Inorganic Carbon	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L			1.27		1.45		0.85		0.92		0.41	J	1.4		1.25		0.93	J	0.981	J	1.15		NA		NA		NA		NA	
METALS																															
Antimony	mg/L	0.006		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Manganese	mg/L	14		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		0.0368	
VOLATILES																															
1,1-Dichloroethene	µg/L	7		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	NA		< 1	U	NA		NA	
cis-1,2-Dichloroethene	µg/L	70		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	NA		< 0.5	U	NA		NA	
Tetrachloroethene	µg/L	5		6.2		5.7		5.8		6.3		5.8		8.5		8.5		3.1		3.4		3.6		NA		4.14		NA		NA	
Trichloroethene	µg/L	5		0.55	J	0.53	J	< 0.5	U	0.53	J	0.55	J	0.61	J	0.72	J	< 0.5	U	< 0.5	U	< 0.5	U	NA		1.84		NA		NA	
Vinyl chloride	µg/L	2		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	NA		< 0.5	U	NA		NA	

Table 2-3
Surface Water and Groundwater Results RA-O 2013–2021

			Location Code		35BWW13																							
			Sample ID	35BWW13-	35BWW13-		35BWW13F-		35BWW13-		35BWW13-		35BWW13F-		35BWW13-		35BWW13-		35BWW13-		35BWW13-		35BWW13-		35BWW13-		35BWW13-	
			Sample Date	10/20/2015	12/21/2015		12/21/2015		12/21/2015		2/16/2016		2/16/2016		2/16/2016		8/19/2016		8/19/2016		11/7/2017		11/7/2017		2/13/2018		2/13/2018		2/13/2018	
			Sample Event	0 - 0	0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0	
			Sample Purpose	REG	REG		REG		REG		REG		REG		REG		REG		REG		FD		REG		FD		REG		FD	
Parameter	Units	MCL		Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																															
Bromide	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Chloride	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Fluoride	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	10		3.07		NA		NA		2.07	J	NA		NA		2.72		NA		NA		NA		NA		NA		NA		NA	
Nitrite	mg/L	1		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L			33.3		NA		NA		40.6		NA		NA		103		NA		NA		NA		NA		NA		NA		NA	
SULFIDE																															
Sulfide	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
DHC																															
Dehalococcoides	cells/mL			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
FIELD TESTS																															
Specific conductivity	µmhos/cm			NM		0.132		NM		NM		0.251		NM		NM		0.306		NM		NM		0.154		NM		0.133		NM	
Dissolved oxygen	mg/L			NM		4.98		NM		NM		2.42		NM		NM		2.55		NM		NM		4.59		NM		5.59		NM	
Oxidation Reduction Potential	mV			NM		312		NM		NM		376		NM		NM		496		NM		NM		289.1		NM		213.1		NM	
pH	pH_units			NM		4.71		NM		NM		4.17		NM		NM		3.3		NM		NM		5.27		NM		4.94		NM	
Temperature	C			NM		18.45		NM		NM		18.68		NM		NM		19.19		NM		NM		18.43		NM		15.65		NM	
Turbidity	NTU			NM		474		NM		NM		123		NM		NM		77.3		NM		NM		4.9		NM		1.5		NM	
Water Level at Reading Time	Ft BTOC			NM		NM		NM		NM		NM		NM		NM		NM		NM		NM		25.65		NM		25.43		NM	
GASES																															
Carbon dioxide	µg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Ethane	µg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Ethylene	µg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Methane	µg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
GEN CHEMISTRY																															
Ferrous Iron (Iron II)	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
TOTAL ORGANIC CARBON																															
Total Inorganic Carbon	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
METALS																															
Antimony	mg/L	0.006		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Manganese	mg/L	14		NA		NA		0.0895		NA		NA		0.0938		NA		NA		NA		NA		NA		NA		NA		NA	
VOLATILES																															
1,1-Dichloroethene	µg/L	7		NA		NA		NA		NA		NA		NA		NA		NA		< 1	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70		NA		NA		NA		NA		NA		NA		NA		NA		< 0.5	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U
Tetrachloroethene	µg/L	5		NA		NA		NA		NA		NA		NA		NA		NA		< 0.5	U	0.84	J	0.99	J	1.9		1.9		1.9	
Trichloroethene	µg/L	5		NA		NA		NA		NA		NA		NA		NA		NA		< 0.5	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U
Vinyl chloride	µg/L	2		NA		NA		NA		NA		NA		NA		NA		NA		< 0.5	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U

Table 2-3
Surface Water and Groundwater Results RA-O 2013–2021

			Location Code	35BWW13																						35BWW14			
			Sample ID	35BWW13-		35BWW13-		35BWW13-		35BWW13-		35BWW13-		35BWW13-		35BWW13-		35BWW13-		35BWW13-		35BWW13-		35BWW13-		35BWW14-		35BWW14-	
			Sample Date	3/28/2018		3/28/2018		5/24/2018		8/21/2018		11/16/2018		2/14/2019		5/22/2019		8/6/2019		11/25/2019		5/7/2020		11/11/2020		5/17/2021		10/9/2013		10/9/2013	
			Sample Event	0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		29.6 - 29.6		0 - 0		0 - 0	
			Sample Purpose	REG		FD		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL		Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																															
Bromide	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA			
Chloride	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		16.3			
Fluoride	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA			
Nitrate	mg/L	10		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		< 0.2		U	
Nitrite	mg/L	1		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		< 0.2		U	
Sulfate	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		59.5			
SULFIDE																															
Sulfide	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		< 1		U	
DHC																															
Dehalococcoides	cells/mL			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		0.3		U	
FIELD TESTS																															
Specific conductivity	µmhos/cm			0.141		NM		0.139		0.152		0.136		0.204		0.185		0.2		0.179		0.204		0.166		0.210		0.368		NM	
Dissolved oxygen	mg/L			4.84		NM		0		0.95		4.08		0.8		0.08		0.71		3.25		0.08		3.54		0.38		0.68		NM	
Oxidation Reduction Potential	mV			267		NM		538		376		235.5		433		387		324		296		315		275		322		-52		NM	
pH	pH_units			4.04		NM		3.77		4.58		5.12		4.26		3.93		4.81		4.85		4.59		4.41		4.33		6.83		NM	
Temperature	C			17.73		NM		18.40		22.74		18.72		17.29		21.89		25.21		16.63		17.29		17.86		18.27		20.93		NM	
Turbidity	NTU			0		NM		877		191		0		283		683		146		141		134		49.3		206		1		NM	
Water Level at Reading Time	Ft BTOC			24.37		NM		24.25		25.92		25.18		22.99		20.4		22.23		24.6		21.91		23.83		19.93		NM		NM	
GASES																															
Carbon dioxide	µg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Ethane	µg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		< 2	U
Ethylene	µg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		< 2	U
Methane	µg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		83.6	
GEN CHEMISTRY																															
Ferrous Iron (Iron II)	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
TOTAL ORGANIC CARBON																															
Total Inorganic Carbon	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		18.3	
Total organic carbon	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		3.84	
METALS																															
Antimony	mg/L	0.006		< 0.001	U	< 0.001	U	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Manganese	mg/L	14		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
VOLATILES																															
1,1-Dichloroethene	µg/L	7		NA		NA		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	NA		57.2	
cis-1,2-Dichloroethene	µg/L	70		NA		NA		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	NA		14.3	
Tetrachloroethene	µg/L	5		NA		NA		< 0.5	U	< 0.5	U	1.1		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U	< 1	U	NA		19	
Trichloroethene	µg/L	5		NA		NA		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	NA		82.8	
Vinyl chloride	µg/L	2		NA		NA		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	NA		5.09	

Table 2-3
Surface Water and Groundwater Results RA-O 2013–2021

			Location Code		35BWW14																					
			Sample ID	35BWW14-		35BWW14-		35BWW14-		35BWW14FD-		35BWW14-		35BWW14-		35BWW14-		35BWW14-		35BWW14-081716		35BWW14-		35BWW14-		35BWW14-	
			Sample Date	10/20/2015		10/20/2015		12/21/2015		12/21/2015		12/21/2015		2/16/2016		2/16/2016		8/17/2016		8/17/2016		11/7/2017		2/15/2018		5/22/2018		8/22/2018	
			Sample Event	0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0	
			Sample Purpose	REG		REG		REG		FD		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																										
Bromide	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		1.09		NA		NA		NA	
Chloride	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		30		11.1		11.9		15.6		10	
Fluoride	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		0.476		NA		NA		NA	
Nitrate	mg/L	10	NA		0.161	J	NA		< 0.2	U	< 0.2	U	NA		< 0.2	U	NA		0.537	J	< 0.1	U	0.533		0.349		0.423	
Nitrite	mg/L	1	NA		NA		NA		NA		NA		NA		NA		NA		< 0.2	U	< 0.1	U	< 0.05	U	< 0.1	U	< 0.1	U
Sulfate	mg/L		NA		73.4		NA		71.4		71.1		NA		75.5		NA		91.9		55.6		54.5		66.7		52.1	
SULFIDE																												
Sulfide	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		< 1	U	< 1	U	NA		NA		NA	
DHC																												
Dehalococcoides	cells/mL		NA		NA		NA		NA		NA		NA		NA		NA		NA		< 0.5	U	NA		< 0.5		NA	
FIELD TESTS																												
Specific conductivity	µmhos/cm		0.446		NM		0.522		NM		NM		0.51		NM		0.647		NM		0.484		0.440		0.303		0.451	
Dissolved oxygen	mg/L		0		NM		0.65		NM		NM		1.34		NM		0.47		NM		0.56		2.7		0		0.25	
Oxidation Reduction Potential	mV		187		NM		186		NM		NM		254		NM		444		NM		0.56		105.9		388		245	
pH	pH_units		6.64		NM		5.8		NM		NM		5.47		NM		4.41		NM		7.05		6.76		5.11		5.28	
Temperature	C		22.6		NM		20.05		NM		NM		20.32		NM		19.78		NM		20		20.38		22.73		25.74	
Turbidity	NTU		0		NM		0		NM		NM		0		NM		0		NM		0		0		17.9		66.9	
Water Level at Reading Time	Ft BTOC		NM		NM		NM		NM		NM		NM		NM		NM		NM		23.46		23.2		22.38		23.89	
GASES																												
Carbon dioxide	µg/L		NA		NA		NA		NA		NA		NA		NA		NA		1,020,000		9,400		20,000		480,000		520,000	J
Ethane	µg/L		NA		NA		NA		NA		NA		NA		NA		NA		< 2	U	< 0.076	U	< 0.6	U	< 0.47	U	< 0.47	U
Ethylene	µg/L		NA		NA		NA		NA		NA		NA		NA		NA		< 2	U	< 0.071	U	< 1	U	< 0.55	U	< 0.55	U
Methane	µg/L		NA		NA		NA		NA		NA		NA		NA		NA		14.4		1.3		< 1.3	U	< 1	U	< 2.2	UB
GEN CHEMISTRY																												
Ferrous Iron (Iron II)	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		0.35		0		0		0.00	
TOTAL ORGANIC CARBON																												
Total Inorganic Carbon	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		71.5		43		NA		NA		NA	
Total organic carbon	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		15.5		0.812	J	0.766	J	1.03		0.961	J
METALS																												
Antimony	mg/L	0.006	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		< 0.001	U	NA		NA	
Manganese	mg/L	14	NA		0.0276		NA		0.0298		0.0275		NA		0.0211		NA		NA		NA		NA		NA		NA	
VOLATILES																												
1,1-Dichloroethene	µg/L	7	NA		NA		NA		NA		NA		NA		NA		NA		10		8.4		< 0.5	U	5.1		2.2	
cis-1,2-Dichloroethene	µg/L	70	NA		NA		NA		NA		NA		NA		NA		NA		3.44		2.4		1.1		2.6		1.4	
Tetrachloroethene	µg/L	5	NA		NA		NA		NA		NA		NA		NA		NA		20.1		53		44		30		31	
Trichloroethene	µg/L	5	NA		NA		NA		NA		NA		NA		NA		NA		39.7		24		20		23		12	
Vinyl chloride	µg/L	2	NA		NA		NA		NA		NA		NA		NA		NA		0.301	J	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U

Table 2-3
Surface Water and Groundwater Results RA-O 2013–2021

	Location Code		35BWW14																35BWW15										35BWW15	
	Sample ID		35BWW14-		35BWW14-		35BWW14-		35BWW14-		35BWW14-		35BWW14-		35BWW14-		35BWW14-		35BWW15-		35BWW15-		35BWW15-		35BWW15-		35BWW15-		35BWW15-	
	Sample Date		11/20/2018		2/12/2019		5/21/2019		8/6/2019		11/25/2019		5/7/2020		11/10/2020		5/18/2021		10/8/2013		1/14/2014		1/14/2014		8/19/2016		8/19/2016		11/7/2017	
	Sample Event		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		31.71 - 31.71		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0	
	Sample Purpose		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																														
Bromide	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Chloride	mg/L		8.74		12.2		18.4		20.8		16.9		18		16.8		17.3		NA		NA		NA		NA		NA		NA	
Fluoride	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	10	0.451		0.483		0.368		0.357		0.394		0.394		0.228		0.0589	J	NA		NA		NA		NA		NA		NA	
Nitrite	mg/L	1	< 0.1	U	< 0.1	U	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L		46.2		57.1		72.4		81.4		72.7		73.7		73.2		73.3		NA		NA		NA		NA		NA		NA	
SULFIDE																														
Sulfide	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
DHC																														
Dehalococcoides	cells/mL		0.1		0.5		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
FIELD TESTS																														
Specific conductivity	µmhos/cm		0.409		0.435		0.440		0.430		0.359		0.440		0.372		0.450		0.868		0.519		NM		0.534		NM		0.480	
Dissolved oxygen	mg/L		0.73		0.4		0.16		0.05		0.05		0.23		0.06		0.48		0.82		0.19		NM		0.5		NM		0.8	
Oxidation Reduction Potential	mV		113.1		327		219		158		184		157		202		239		-45		107		NM		455		NM		226.3	
pH	pH_units		7.0		5.42		6.35		6.85		6.07		6.58		6.29		5.91		6.84		7.01		NM		4.63		NM		6.74	
Temperature	C		19.27		16.48		22.15		23.39		18.98		17.73		19.77		18.7		21.01		17.07		NM		19.11		NM		19.09	
Turbidity	NTU		0		0		50.7		37.1		5.1		7		0		0.3		1,000		22.1		NM		21.9		NM		0	
Water Level at Reading Time	Ft BTOC		22.96		21.74		19.54		20.83		27.73		20.65		21.96		18.82		NM		NM		NM		NM		NM		24.2	
GASES																														
Carbon dioxide	µg/L		NA		770,000		160,000		42,000		31,000		29,000		42,000		320,000		NA		NA		NA		NA		NA		NA	
Ethane	µg/L		< 1	U	< 0.16	U	< 0.47	U	< 0.47	U	< 0.47	U	< 0.47	U	< 0.47	U	< 0.47	U	NA		NA		NA		NA		NA		NA	
Ethylene	µg/L		1.31		< 0.24	U	< 0.55	U	< 0.55	U	< 0.55	U	< 0.55	U	< 0.55	U	< 0.55	U	NA		NA		NA		NA		NA		NA	
Methane	µg/L		1.48		6.8		< 1	U	4.6		< 1	U	< 1	U	< 1	U	< 1	U	NA		NA		NA		NA		NA		NA	
GEN CHEMISTRY																														
Ferrous Iron (Iron II)	mg/L		0.02		0.67		0.4		0.45		0.08		0.29		NA		0.16		NA		NA		NA		NA		NA		NA	
TOTAL ORGANIC CARBON																														
Total Inorganic Carbon	mg/L		NA		137		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L		0.89		3.25		0.7		0.93		0.54	J	0.83	J-	0.52		1.49		NA		NA		NA		NA		NA		NA	
METALS																														
Antimony	mg/L	0.006	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Manganese	mg/L	14	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
VOLATILES																														
1,1-Dichloroethene	µg/L	7	2.2		5.6		< 0.5	U	4.2		4.6		3.6		2.1		1.8		NA		NA		35.5		NA		6.63		4.2	
cis-1,2-Dichloroethene	µg/L	70	0.91	J	2.1		0.66	J	1.3		1.5		1.2		0.64	J	< 0.5	U	NA		NA		6.25		NA		1.73		1.1	
Tetrachloroethene	µg/L	5	37		37		< 0.5	U	38		38		40		23		27		NA		NA		8.69		NA		14.5		12	
Trichloroethene	µg/L	5	9.1		22		110		15		16		14		7.7		6.9		NA		NA		43.5		NA		20.5		15	
Vinyl chloride	µg/L	2	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	NA		NA		3.42		NA		< 0.5	U	< 1	U

Table 2-3
Surface Water and Groundwater Results RA-O 2013–2021

Location Code			35BWW15																									
Sample ID			35BWW15-		35BWW15-		35BWW15-		35BWW15-		35BWW15-		35BWW15-		35BWW15-		35BWW15-		35BWW15-		35BWW15-		35BWW15-		35BWW15-		35BWW15-	
Sample Date			2/13/2018		3/29/2018		5/21/2018		8/20/2018		11/16/2018		11/16/2018		2/14/2019		5/22/2019		8/7/2019		11/22/2019		11/22/2019		5/7/2020		11/10/2020		5/18/2021	
Sample Event			0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		34.34 - 34.34	
Sample Purpose			REG		REG		REG		REG		REG		FD		REG		REG		REG		FD		REG		REG		REG		REG	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																														
Bromide	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Chloride	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Fluoride	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	10	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Nitrite	mg/L	1	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
SULFIDE																														
Sulfide	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
DHC																														
Dehalococcoides	cells/mL		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
FIELD TESTS																														
Specific conductivity	µmhos/cm		0.519		0.500		0.311		0.431		0.521		NM		0.389		0.457		0.388		NM		0.310		0.405		0.327		0.499	
Dissolved oxygen	mg/L		0.61		0.46		0		0.47		0.69		NM		0.05		0.09		0.32		NM		0.49		0.07		0.69		0.68	
Oxidation Reduction Potential	mV		99.3		144.4		328		208		84.3		NM		374		323		218		NM		280		168		238		236	
pH	pH_units		6.65		6.28		5.42		5.73		6.98		NM		5.87		5.73		6.69		NM		6.37		6.36		5.23		5.94	
Temperature	C		15.68		20.2		20.37		23.52		19.16		NM		19.20		21.65		24.68		NM		18.99		17.40		20.04		19.53	
Turbidity	NTU		0		0		5.4		22.5		0		NM		7.4		12.5		152		NM		90.2		44.3		38.2		69.7	
Water Level at Reading Time	Ft BTOC		24		22.6		23.81		24.26		23.65		NM		22.06		20.56		21.41		NM		23.18		21.33		22.57		19.84	
GASES																														
Carbon dioxide	µg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Ethane	µg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Ethylene	µg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Methane	µg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
GEN CHEMISTRY																														
Ferrous Iron (Iron II)	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
TOTAL ORGANIC CARBON																														
Total Inorganic Carbon	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
METALS																														
Antimony	mg/L	0.006	NA		< 0.001	U	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Manganese	mg/L	14	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
VOLATILES																														
1,1-Dichloroethene	µg/L	7	2.2		NA		3.4		1.7		2.6		2.2		1.9		< 0.5	U	1.1		1.1		1.2		0.87	J	0.74	J	0.63	J
cis-1,2-Dichloroethene	µg/L	70	< 0.5	U	NA		< 0.5	U	< 0.5	U	0.68	J	< 0.5	U	0.65	J	< 0.5	U	0.39	J	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Tetrachloroethene	µg/L	5	12		NA		13		11		11		10		12		7.8		9.7		11		11		13		11		14	
Trichloroethene	µg/L	5	14		NA		13		9.2		12		12		11		7.1		7.6		7.6		7.8		7.7		5.4		6.2	
Vinyl chloride	µg/L	2	< 0.5	U	NA		< 0.5	U	< 0.5	U	0.63	J	0.63	J	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U

Table 2-3
Surface Water and Groundwater Results RA-O 2013–2021

Location Code			35BWW16						35BWW16																			
Sample ID			35BWW16-		35BWW16FD-		35BWW16-		35BWW16-		35BWW16-		35BWW16-		35BWW16-		35BWW16-		35BWW16-		35BWW16-		35BWW16-		35BWW16-		35BWW16-	
Sample Date			10/7/2013		10/7/2013		10/7/2013		12/21/2015		12/21/2015		8/19/2016		8/19/2016		11/7/2017		2/13/2018		3/29/2018		5/24/2018		8/17/2018		11/16/2018		2/15/2019	
Sample Event			0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0	
Sample Purpose			REG		FD		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																														
Bromide	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Chloride	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Fluoride	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	10	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Nitrite	mg/L	1	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
SULFIDE																														
Sulfide	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
DHC																														
Dehalococcoides	cells/mL		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
FIELD TESTS																														
Specific conductivity	µmhos/cm		0.259		NM		NM		0.291		NM		0.353		NM		0.314		0.320		0.295		0.183		0.198		0.298		0.296	
Dissolved oxygen	mg/L		1.35		NM		NM		0.56		NM		0.44		NM		1.74		0.65		0.99		0		0.27		0.97		0.08	
Oxidation Reduction Potential	mV		213		NM		NM		224		NM		467		NM		178.3		155.4		201.3		491		267		152.3		447	
pH	pH_units		6		NM		NM		5.68		NM		4.11		NM		6.24		5.71		5.11		5.02		5.43		6.13		4.61	
Temperature	C		22.42		NM		NM		19.19		NM		18.23		NM		18.78		15.24		19.75		23.55		27.97		17.48		16.82	
Turbidity	NTU		98.9		NM		NM		434		NM		710		NM		5.7		0		30.9		786		600		0		226	
Water Level at Reading Time	Ft BTOC		NM		NM		NM		NM		NM		NM		NM		23.7		23.48		22.5		22.48		23.91		23.3		21.81	
GASES																														
Carbon dioxide	µg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Ethane	µg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Ethylene	µg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Methane	µg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
GEN CHEMISTRY																														
Ferrous Iron (Iron II)	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
TOTAL ORGANIC CARBON																														
Total Inorganic Carbon	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
METALS																														
Antimony	mg/L	0.006	NA		NA		NA		NA		NA		NA		NA		NA		NA		< 0.001	U	NA		NA		NA		NA	
Manganese	mg/L	14	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
VOLATILES																														
1,1-Dichloroethene	µg/L	7	NA		0.846	J	0.865	J	NA		NA		NA		0.787	J	1.1		< 0.5	U	NA		< 0.5	U	< 0.5	U	1.5		1	
cis-1,2-Dichloroethene	µg/L	70	NA		< 0.5	U	< 0.5	U	NA		NA		NA		< 0.5	U	< 1	U	< 0.5	U	NA		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Tetrachloroethene	µg/L	5	NA		0.447	J	0.447	J	NA		NA		NA		5.13		9.2		12		NA		7.8		6.6		15		11	
Trichloroethene	µg/L	5	NA		2.45		2.57		NA		NA		NA		3.43		4.2		5.8		NA		4		3.3		6.5		4.7	
Vinyl chloride	µg/L	2	NA		< 0.5	U	< 0.5	U	NA		NA		NA		< 0.5	U	< 1	U	< 0.5	U	NA		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U

Table 2-3
Surface Water and Groundwater Results RA-O 2013–2021

			35BWW16												35BWW17													
Location Code			35BWW16												35BWW17													
Sample ID			35BWW16-		35BWW16-		35BWW16-		35BWW16-		35BWW16-		35BWW16-		35BWW17-		35BWW17-		35BWW17-		35BWW17-		35BWW17-		35BWW17-		35BWW17-	
Sample Date			5/23/2019		8/7/2019		11/21/2019		5/7/2020		11/11/2020		5/18/2021		10/8/2013		2/4/2014		2/4/2014		8/19/2016		8/19/2016		11/7/2017		2/13/2018		3/29/2018	
Sample Event			0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		29.01 - 29.01		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0	
Sample Purpose			REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																												
Bromide	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Chloride	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Fluoride	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	10	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Nitrite	mg/L	1	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
SULFIDE																												
Sulfide	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
DHC																												
Dehalococcoides	cells/mL		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
FIELD TESTS																												
Specific conductivity	µmhos/cm		0.296		0.244		0.206		0.259		0.209		0.257		0.259		0.066		NM		0.097		NM		0.199		0.234		0.119	
Dissolved oxygen	mg/L		0.06		0.06		0.23		0.03		0.15		0.25		0.6		3.42		NM		1.05		NM		0.64		0.45		1.55	
Oxidation Reduction Potential	mV		343		189		306		198		281		287		142		256		NM		505		NM		125.4		201.3		244.9	
pH	pH_units		5.26		5.91		5.50		5.59		4.43		5.58		5.67		5.53		NM		3.4		NM		6.27		5.15		4.45	
Temperature	C		21.27		25.67		18.23		17.61		18.06		21.84		20.59		15		NM		19.29		NM		19.5		13.93		19.19	
Turbidity	NTU		164		106		128		126		357		167		975		78.1		NM		706		NM		0		0.1		10.1	
Water Level at Reading Time	Ft BTOC		20.4		21.08		22.86		20.95		22.09		19.4		NM		NM		NM		NM		NM		23		22.93		21.45	
GASES																												
Carbon dioxide	µg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Ethane	µg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Ethylene	µg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Methane	µg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
GEN CHEMISTRY																												
Ferrous Iron (Iron II)	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
TOTAL ORGANIC CARBON																												
Total Inorganic Carbon	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
METALS																												
Antimony	mg/L	0.006	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		< 0.001	U
Manganese	mg/L	14	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
VOLATILES																												
1,1-Dichloroethene	µg/L	7	< 0.5	U	0.79	J	0.75	J	0.61	J	< 0.5	U	< 0.5	U	NA		NA		< 1	U	NA		< 1	U	< 1	U	< 0.5	U	NA	
cis-1,2-Dichloroethene	µg/L	70	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	NA		NA		< 0.5	U	NA		< 0.5	U	< 1	U	< 0.5	U	NA	
Tetrachloroethene	µg/L	5	9.5		9.8		8.1		9.9		4.4		6		NA		NA		0.512	J	NA		< 0.5	U	2.6		7.5		NA	
Trichloroethene	µg/L	5	3.6		3.5		3.2		3.3		1.8		2.1		NA		NA		< 0.5	U	NA		< 0.5	U	1.1		2.9		NA	
Vinyl chloride	µg/L	2	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	NA		NA		< 0.5	U	NA		< 0.5	U	< 1	UJ	< 0.5	U	NA	

Table 2-3
Surface Water and Groundwater Results RA-O 2013–2021

Location Code			35BWW17																				35BWW18					
Sample ID			35BWW17-		35BWW17-		35BWW17-		35BWW17-		35BWW17-		35BWW17-		35BWW17-		35BWW17-		35BWW17-		35BWW17-		35BWW18-		35BWWU18-		35BWW18-	
Sample Date			5/24/2018		8/21/2018		11/16/2018		2/14/2019		5/22/2019		8/7/2019		11/21/2019		5/7/2020		11/11/2020		5/18/2021		5/18/2021		10/2/2013		10/2/2013		10/2/2013	
Sample Event			0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		28.49 - 28.49		28.49 - 28.49		0 - 0		0 - 0		0 - 0	
Sample Purpose			REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		FD		REG		REG		REG	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																														
Bromide	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Chloride	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Fluoride	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	10	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Nitrite	mg/L	1	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
SULFIDE																														
Sulfide	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
DHC																														
Dehalococcoides	cells/mL		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
FIELD TESTS																														
Specific conductivity	µmhos/cm		0.058		0.085		0.183		0.072		0.08		0.06		0.052		0.062		0.048		0.064		NM		2.42		NM		NM	
Dissolved oxygen	mg/L		0		1.1		0.44		1.12		0.22		1.25		1.29		0.07		0.43		0.33		NM		1.05		NM		NM	
Oxidation Reduction Potential	mV		540		370		214		410		386		350		385		269		282		224		NM		-166		NM		NM	
pH	pH_units		3.81		4.74		5.19		4.67		4.08		4.90		5.12		4.98		4.52		5.89		NM		12.3		NM		NM	
Temperature	C		19.35		22.37		19.08		18.22		21.02		23.82		18.09		16.76		18.66		18.5		NM		28.79		NM		NM	
Turbidity	NTU		812		639		0		359		687		235		216		368		238		269		NM		1		NM		NM	
Water Level at Reading Time	Ft BTOC		21.66		23.35		22.63		20.34		18.2		19.84		22.1		19.42		21.33		17.5		NM		NM		NM		NM	
GASES																														
Carbon dioxide	µg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Ethane	µg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Ethylene	µg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Methane	µg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
GEN CHEMISTRY																														
Ferrous Iron (Iron II)	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
TOTAL ORGANIC CARBON																														
Total Inorganic Carbon	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
METALS																														
Antimony	mg/L	0.006	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Manganese	mg/L	14	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
VOLATILES																														
1,1-Dichloroethene	µg/L	7	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	UJ	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	NA		< 1	U	< 1	U
cis-1,2-Dichloroethene	µg/L	70	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	UJ	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	NA		< 0.5	U	< 0.5	U
Tetrachloroethene	µg/L	5	< 0.5	U	< 0.5	U	5.4		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U	< 1	U	< 1	U	NA		< 0.5	U	< 0.5	U
Trichloroethene	µg/L	5	< 0.5	U	< 0.5	U	1.8		< 0.5	U	< 0.5	U	< 0.5	UJ	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	NA		< 0.5	U	< 0.5	U
Vinyl chloride	µg/L	2	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	NA		< 0.5	U	< 0.5	U

Table 2-3
Surface Water and Groundwater Results RA-O 2013–2021

Location Code			35BWW18																									
Sample ID			35BWW18-		35BWW18-		35BWW18-		35BWW18-		35BWW18-		35BWW18-		35BWW18-		35BWW18-		35BWW18-		35BWW18-		35BWW18-		35BWW18-		35BWW18-	
Sample Date			8/16/2016		8/16/2016		11/7/2017		2/13/2018		3/27/2018		5/21/2018		8/16/2018		11/19/2018		2/14/2019		5/20/2019		8/5/2019		11/26/2019		5/11/2020		11/9/2020	
Sample Event			0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0	
Sample Purpose			REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																														
Bromide	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Chloride	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Fluoride	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	10	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Nitrite	mg/L	1	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
SULFIDE																														
Sulfide	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
DHC																														
Dehalococcoides	cells/mL		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
FIELD TESTS																														
Specific conductivity	µmhos/cm		1.12		NM		0.842		0.979		0.842		0.621		0.865		0.787		0.850		0.988		0.735		0.642		2.29		2.22	
Dissolved oxygen	mg/L		0.84		NM		1.37		0.93		1.73		0		0.82		1.47		0.09		0.05		1.44		0.88		0.37		0.3	
Oxidation Reduction Potential	mV		300		NM		205.6		125.3		184.1		363		227		151.1		369		263		269		246		177		168	
pH	pH_units		4.64		NM		6.04		6.10		5.59		5.40		5.59		6.14		5.61		5.77		6.23		6.28		6.6		6.53	
Temperature	C		19.99		NM		19.36		15.29		22.11		19.08		24.11		17.93		16.89		20.95		20.85		19.88		18.67		20.82	
Turbidity	NTU		21.8		NM		7.3		0		0		312		162		0		1.2		44.9		0		8.3		16.4		12.5	
Water Level at Reading Time	Ft BTOC		NM		NM		27.88		28.3		27.4		27.24		28.18		27.79		26.63		25.82		25.84		27.17		25.94		26.38	
GASES																														
Carbon dioxide	µg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Ethane	µg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Ethylene	µg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Methane	µg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
GEN CHEMISTRY																														
Ferrous Iron (Iron II)	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
TOTAL ORGANIC CARBON																														
Total Inorganic Carbon	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
METALS																														
Antimony	mg/L	0.006	NA		NA		NA		NA		< 0.001	U	NA		NA		NA		NA		NA		NA		NA		NA		NA	
Manganese	mg/L	14	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
VOLATILES																														
1,1-Dichloroethene	µg/L	7	NA		< 1	U	< 1	U	< 0.5	U	NA		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	NA		< 0.5	U	< 1	U	< 0.5	U	NA		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Tetrachloroethene	µg/L	5	NA		< 0.5	U	< 1	U	< 0.5	U	NA		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U
Trichloroethene	µg/L	5	NA		< 0.5	U	< 1	U	< 0.5	U	NA		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Vinyl chloride	µg/L	2	NA		< 0.5	U	< 1	U	< 0.5	U	NA		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U

Table 2-3
Surface Water and Groundwater Results RA-O 2013–2021

	Location Code		35BWW18		35BWW19																							
	Sample ID		35BWW18-		35BWW19-		35BWW19-		35BWW19-		35BWW19-		35BWW19-		35BWW19-		35BWW19-		35BWW19-		35BWW19-		35BWW19-		35BWW19-		35BWW19-	
	Sample Date		5/18/2021		10/7/2013		10/7/2013		8/16/2016		8/16/2016		11/7/2017		2/13/2018		3/27/2018		5/21/2018		8/16/2018		11/19/2018		2/14/2019		5/20/2019		8/5/2019	
	Sample Event		28.06 - 28.06		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0	
	Sample Purpose		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																														
Bromide	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Chloride	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Fluoride	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	10	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Nitrite	mg/L	1	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
SULFIDE																														
Sulfide	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
DHC																														
Dehalococcoides	cells/mL		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
FIELD TESTS																														
Specific conductivity	µmhos/cm		1.95		2.53		NM		2.64		NM		2.465		3.035		2.675		2.62		1.36		2.723		2.68		2.58		2.60	
Dissolved oxygen	mg/L		0.53		1.62		NM		0.76		NM		0.84		1.34		1.21		0		0.48		1.68		1.08		0.37		1.85	
Oxidation Reduction Potential	mV		162		138		NM		332		NM		182		114.9		161.2		345		229		144.6		376		263		258	
pH	pH_units		6.46		6.23		NM		5.24		NM		6.30		6.30		5.73		5.67		6.18		6.48		6.4		5.83		6.65	
Temperature	C		20.75		17.7		NM		20.93		NM		19.45		14.24		21.49		19.22		28.08		17.45		16.27		21.68		20.59	
Turbidity	NTU		7.7		9.8		NM		44.5		NM		12		0.4		0		111		356		0		5.7		66.9		12.4	
Water Level at Reading Time	Ft BTOC		24.42		NM		NM		NM		NM		27.3		27.76		27.3		26.95		27.77		27.52		26.4		25.89		25.63	
GASES																														
Carbon dioxide	µg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Ethane	µg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Ethylene	µg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Methane	µg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
GEN CHEMISTRY																														
Ferrous Iron (Iron II)	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
TOTAL ORGANIC CARBON																														
Total Inorganic Carbon	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
METALS																														
Antimony	mg/L	0.006	NA		NA		NA		NA		NA		NA		NA		< 0.001	U	NA		NA		NA		NA		NA		NA	
Manganese	mg/L	14	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
VOLATILES																														
1,1-Dichloroethene	µg/L	7	< 0.5	U	NA		< 1	U	NA		< 1	U	< 1	U	< 0.5	U	NA		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	< 0.5	U	NA		< 0.5	U	NA		< 0.5	U	< 1	U	< 0.5	U	NA		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Tetrachloroethene	µg/L	5	< 1	U	NA		< 0.5	U	NA		< 0.5	U	< 1	U	< 0.5	U	NA		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Trichloroethene	µg/L	5	< 0.5	U	NA		< 0.5	U	NA		< 0.5	U	< 1	U	< 0.5	U	NA		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Vinyl chloride	µg/L	2	< 0.5	U	NA		< 0.5	U	NA		< 0.5	U	< 1	U	< 0.5	U	NA		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U

Table 2-3
Surface Water and Groundwater Results RA-O 2013–2021

			Location Code	35BWW19								35BWW20															
			Sample ID	35BWW19-		35BWW19-		35BWW19-		35BWW19-		35BWW20-		35BWW20-		35BWW20-		35BWW20-		35BWW20-		35BWW20-		35BWW20-		35BWW20-	
			Sample Date	11/26/2019		5/11/2020		11/9/2020		5/18/2021		10/4/2013		10/4/2013		8/18/2016		8/18/2016		11/8/2017		2/12/2018		3/27/2018		5/24/2018		8/20/2018		11/18/2018	
			Sample Event	0 - 0		0 - 0		0 - 0		28.68 - 28.68		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0	
			Sample Purpose	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL		Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																															
Bromide	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Chloride	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Fluoride	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	10		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Nitrite	mg/L	1		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
SULFIDE																															
Sulfide	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
DHC																															
Dehalococcoides	cells/mL			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
FIELD TESTS																															
Specific conductivity	µmhos/cm			2.71		2.76		2.83		2.47		0.378		NM		0.352		NM		0.328		0.413		0.366		0.240		0.372		0.376	
Dissolved oxygen	mg/L			0.84		1.19		1.03		0.91		1.65		NM		2		NM		2.15		3.49		3.97		0.93		1.03		3.52	
Oxidation Reduction Potential	mV			231		183		177		212		170		NM		376		NM		136.7		94.3		190.7		366		238		130.1	
pH	pH_units			6.37		6.62		6.38		6.76		5.23		NM		5.65		NM		6.70		7.09		5.82		5.66		7.13		6.85	
Temperature	C			19.46		18.95		20.79		22		23.28		NM		22.92		NM		19.30		16.04		23.72		21.6		28.86		20.71	
Turbidity	NTU			139		145		53		124		35.9		NM		259		NM		25		20.3		24.1		272		648		0	
Water Level at Reading Time	Ft BTOC			26.74		25.87		25.99		24.45		NM		NM		NM		NM		27.05		26.6		25.78		25.65		27.04		25.93	
GASES																															
Carbon dioxide	µg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Ethane	µg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Ethylene	µg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Methane	µg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
GEN CHEMISTRY																															
Ferrous Iron (Iron II)	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
TOTAL ORGANIC CARBON																															
Total Inorganic Carbon	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
METALS																															
Antimony	mg/L	0.006		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		< 0.001	U	NA		NA		NA	
Manganese	mg/L	14		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
VOLATILES																															
1,1-Dichloroethene	µg/L	7		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	NA		< 1	U	NA		< 1	U	< 1	U	< 0.5	U	NA		< 0.5	U	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	NA		< 0.5	U	NA		< 0.5	U	< 1	U	< 0.5	U	NA		< 0.5	U	< 0.5	U	< 0.5	U
Tetrachloroethene	µg/L	5		< 0.5	U	< 1	U	< 0.5	U	< 1	U	NA		31.1		NA		26.7		25		34		NA		29		19		34	
Trichloroethene	µg/L	5		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	NA		7.04		NA		6.75		4.7		5.7		NA		6.3		3.6		6.4	
Vinyl chloride	µg/L	2		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	NA		< 0.5	U	NA		< 0.5	U	< 1	U	< 0.5	U	NA		< 0.5	U	< 0.5	U	< 0.5	U

Table 2-3
Surface Water and Groundwater Results RA-O 2013–2021

			Location Code	35BWW20																						35BWW23			
			Sample ID	35BWW20-		35BWW20-		35BWW20-		35BWW20-		35BWW20-		35BMW20-191122		35BWW20-		35BWW20-		35BWW20-		35BWW20-		35BWW20-		35BWW23-		35BWW23-	
			Sample Date	2/13/2019		5/22/2019		5/22/2019		8/6/2019		8/6/2019		11/22/2019		11/22/2019		5/11/2020		5/11/2020		11/9/2020		11/9/2020		5/13/2021		7/1/2014		7/1/2014	
			Sample Event	0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		25.08 - 25.08		0 - 0		0 - 0	
			Sample Purpose	REG		REG		FD		REG		FD		REG		REG		FD		REG		REG		FD		REG		REG		REG	
Parameter	Units	MCL		Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																															
Bromide	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Chloride	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Fluoride	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	10		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Nitrite	mg/L	1		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
SULFIDE																															
Sulfide	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
DHC																															
Dehalococcoides	cells/mL			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
FIELD TESTS																															
Specific conductivity	µmhos/cm			0.331		0.308		NM		0.175		NM		NM		0.239		NM		0.250		0.238		NM		0.294		1.01		NM	
Dissolved oxygen	mg/L			2.08		1.24		NM		3.72		NM		NM		1.88		NM		3.26		1.43		NM		0.87		2.72		NM	
Oxidation Reduction Potential	mV			231		285		NM		264		NM		NM		281		NM		190		220		NM		172		40		NM	
pH	pH_units			6.91		5.65		NM		6.2		NM		NM		6.47		NM		6.37		5.11		NM		5.26		6.37		NM	
Temperature	C			20.79		22.88		NM		22.4		NM		NM		20.62		NM		18.53		23.39		NM		22.61		21.29		NM	
Turbidity	NTU			166		92.8		NM		321		NM		NM		437		NM		188		300		NM		182		1.7		NM	
Water Level at Reading Time	Ft BTOC			24.72		22.21		NM		23.92		NM		NM		26.01		NM		23.29		25.04		NM		21.65		NM		NM	
GASES																															
Carbon dioxide	µg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Ethane	µg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Ethylene	µg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Methane	µg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
GEN CHEMISTRY																															
Ferrous Iron (Iron II)	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
TOTAL ORGANIC CARBON																															
Total Inorganic Carbon	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
METALS																															
Antimony	mg/L	0.006		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Manganese	mg/L	14		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
VOLATILES																															
1,1-Dichloroethene	µg/L	7		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	NA		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	NA		< 1	U
cis-1,2-Dichloroethene	µg/L	70		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	NA		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	NA		< 0.5	U
Tetrachloroethene	µg/L	5		34		12		12		7.5		7.6		15		NA		12		12		12		13		6.1		NA		< 0.5	U
Trichloroethene	µg/L	5		6		2.8		2.9		2.1		2		3.1		NA		2.9		2.9		2.2		2.3		1.8		NA		< 0.5	U
Vinyl chloride	µg/L	2		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	NA		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	NA		< 0.5	U

Table 2-3
Surface Water and Groundwater Results RA-O 2013–2021

			Location Code	35BWW23																									
			Sample ID	35BWW23-		35BWW23-081716		35BWW23-		35BWW23-		35BWW23-		35BWW23-		35BWW23-		35BWW23-		35BWW23-		35BWW23-		35BWW23-		35BWW23-		35BWW23-	
			Sample Date	8/17/2016		8/17/2016		11/9/2017		2/15/2018		5/22/2018		8/22/2018		11/20/2018		2/12/2019		5/21/2019		8/6/2019		11/25/2019		5/7/2020		11/10/2020	
			Sample Event	0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0	
			Sample Purpose	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL		Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																													
Bromide	mg/L			NA		NA		0.469		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Chloride	mg/L			NA		118		89.8		71.1		68.2		58.1		54.5		55.6		39.8		31.7		28.1		21.1		22.8	
Fluoride	mg/L			NA		NA		0.184		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	10		NA		< 0.2	U	< 0.1	U	< 0.05	U	< 0.1	U	0.104		0.081	J	< 0.1	U	< 0.1	U	< 0.1	U	< 0.1	U	< 0.1	U	0.0485	J
Nitrite	mg/L	1		NA		0.187	J	< 0.1	U	0.155		< 0.1	U	< 0.1	U	< 0.1	U	< 0.1	U	NA		NA		NA		NA		NA	
Sulfate	mg/L			NA		127		123		112		116		102		99.7		96		88.1		86.3		85.9		83.8		86.1	
SULFIDE																													
Sulfide	mg/L			NA		< 1	U	< 1	U	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
DHC																													
Dehalococcoides	cells/mL			NA		NA		2.2		NA		< 0.5		NA		0.4	J	0.3	J	NA		NA		NA		NA		NA	
FIELD TESTS																													
Specific conductivity	µmhos/cm			0.961		NM		0.891		0.782		0.466		0.653		0.670		0.667		0.516		0.476		0.404		0.466		0.397	
Dissolved oxygen	mg/L			0.64		NM		4.24		2.83		0		0.59		1.47		0.71		0.06		1.13		1.31		1.83		0.86	
Oxidation Reduction Potential	mV			441		NM		153.1		110.5		393		261		150.6		325		293		228		222		191		250	
pH	pH_units			4.38		NM		6.45		6.42		5.19		5.35		6.41		5.38		5.24		6.63		6.11		6.39		5.03	
Temperature	C			20.87		NM		17.40		21		23.14		28.91		15.92		15.56		23.98		24.69		18.50		19.28		20.3	
Turbidity	NTU			13.5		NM		0		0		0		3.7		0		0		22.1		18.1		1.6		7.9		0	
Water Level at Reading Time	Ft BTOC			NM		NM		28.88		28.75		27.86		29.09		29.18		27.8		26.82		26.73		28.02		27.04		27.26	
GASES																													
Carbon dioxide	µg/L			NA		1,150,000		50,000		63,000		480,000		500,000	J	NA		740,000		730,000		73,000		69,000		42,000		630,000	
Ethane	µg/L			NA		< 2	U	< 0.076	U	< 0.6	U	< 0.47	U	< 0.47	U	0.859	J	< 0.16	U	< 0.47	U	< 0.47	U	< 0.47	U	< 0.47	U	< 0.47	U
Ethylene	µg/L			NA		< 2	U	< 0.071	U	< 1	U	< 0.55	U	< 0.55	U	1.7		< 0.24	U	< 0.55		< 0.55	U	< 0.55	U	< 0.55	U	< 0.55	U
Methane	µg/L			NA		< 2	U	0.9	J	< 1.3	U	< 1	U	< 1	U	2.65		< 0.51	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
GEN CHEMISTRY																													
Ferrous Iron (Iron II)	mg/L			NA		NA		0.16		0.01		0		0		0.01		0.07		0.19		1.04		0.06		0.55		NA	
TOTAL ORGANIC CARBON																													
Total Inorganic Carbon	mg/L			NA		76.5		41		NA		NA		NA		NA		141		NA		NA		NA		NA		NA	
Total organic carbon	mg/L			NA		15.3		1.05		0.946	J	1.19		1.16		1		1.47		1.59		0.94		0.47	J	0.52		1.13	
METALS																													
Antimony	mg/L	0.006		NA		NA		NA		< 0.001	U	NA		NA		NA		NA		NA		NA		NA		NA		NA	
Manganese	mg/L	14		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
VOLATILES																													
1,1-Dichloroethene	µg/L	7		NA		< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70		NA		< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Tetrachloroethene	µg/L	5		NA		< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U
Trichloroethene	µg/L	5		NA		< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Vinyl chloride	µg/L	2		NA		< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U

Table 2-3
Surface Water and Groundwater Results RA-O 2013–2021

			Location Code	35BWW23		35BWW24																					
			Sample ID	35BWW23-		35BWW24-		35BWW24-		35BWW24-		35BWW24-		35BWW24-		35BWW24-		35BWW24-		35BWW24-		35BWW24-		35BWW24-		35BWW24-	
			Sample Date	5/18/2021		8/19/2016		8/19/2016		11/8/2017		2/16/2018		3/28/2018		5/24/2018		8/21/2018		11/16/2018		2/15/2019		5/22/2019		8/7/2019		11/25/2019		5/7/2020	
			Sample Event	27.63 - 27.63		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0	
			Sample Purpose	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																													
Bromide	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Chloride	mg/L		18		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Fluoride	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	10	0.0303	J	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Nitrite	mg/L	1	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L		80.7		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
SULFIDE																													
Sulfide	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
DHC																													
Dehalococcoides	cells/mL		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
FIELD TESTS																													
Specific conductivity	µmhos/cm		0.434		1.59		NM		1.717		1.572		1.49		1.01		1.50		1.483		1.47		1.46		1.43		1.10		1.44	
Dissolved oxygen	mg/L		1.03		0.58		NM		2.18		1.51		2.95		0		0.37		1.69		0.55		1.24		2.23		1.48		3.37	
Oxidation Reduction Potential	mV		270		335		NM		246.9		109.4		164.7		424		250		88.9		309		2.86		238		232		182	
pH	pH_units		5.34		5.3		NM		6.49		6.35		5.53		5.31		5.69		6.09		5.45		6.0		6.47		6.0		6.45	
Temperature	C		18.81		20.33		NM		16.4		19.99		18.36		20.52		23.33		15.00		17.00		23.4		21.61		18.49		18.77	
Turbidity	NTU		2		9.1		NM		9.8		6.7		0		114		48		0		3.8		0		16.3		7.5		8.5	
Water Level at Reading Time	Ft BTOC		26		NM		NM		30.14		30.15		29.61		28.85		30.02		30.18		28.54		27.77		27.69		29.02		27.99	
GASES																													
Carbon dioxide	µg/L		660,000		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Ethane	µg/L		< 0.47	U	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Ethylene	µg/L		< 0.55	U	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Methane	µg/L		< 1	U	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
GEN CHEMISTRY																													
Ferrous Iron (Iron II)	mg/L		0.45		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
TOTAL ORGANIC CARBON																													
Total Inorganic Carbon	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L		1.37		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
METALS																													
Antimony	mg/L	0.006	NA		NA		NA		NA		NA		< 0.001	U	NA		NA		NA		NA		NA		NA		NA		NA	
Manganese	mg/L	14	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
VOLATILES																													
1,1-Dichloroethene	µg/L	7	< 0.5	U	NA		< 1	U	< 1	U	< 0.5	U	NA		< 0.5	U	< 0.5	U	0.67	J	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	0.54	J
cis-1,2-Dichloroethene	µg/L	70	< 0.5	U	NA		< 0.5	U	< 1	U	< 0.5	U	NA		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Tetrachloroethene	µg/L	5	< 1	U	NA		< 0.5	U	< 1	U	< 0.5	U	NA		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U
Trichloroethene	µg/L	5	< 0.5	U	NA		0.415	J	< 1	U	< 0.5	U	NA		< 0.5	U	< 0.5	U	2.9		2.6		1.1		1.7		1.8		2.3	
Vinyl chloride	µg/L	2	< 0.5	U	NA		< 0.5	U	< 1	U	< 0.5	U	NA		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U

Table 2-3
Surface Water and Groundwater Results RA-O 2013–2021

			Location Code	35BWW24						35BWW25																	
			Sample ID	35BWW24-		35BWW24-		35BWW24-		35BWW25-		35BWW25-		35BWW25FD-		35BWW25-		35BWW25-		35BWW25-		35BWW25-		35BWW25-		35BWW25-	
			Sample Date	11/10/2020		5/17/2021		5/17/2021		8/19/2016		8/19/2016		8/19/2016		11/8/2017		11/8/2017		2/16/2018		2/16/2018		3/28/2018		3/28/2018		5/23/2018		5/23/2018	
			Sample Event	0 - 0		27.57 - 27.57		27.57 - 27.57		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0	
			Sample Purpose	REG		REG		FD		REG		REG		FD		REG		FD		REG		FD		REG		FD		REG		FD	
Parameter	Units	MCL		Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																															
Bromide	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Chloride	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Fluoride	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	10		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Nitrite	mg/L	1		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
SULFIDE																															
Sulfide	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
DHC																															
Dehalococcoides	cells/mL			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
FIELD TESTS																															
Specific conductivity	µmhos/cm			1.29		1.36		NM		1.03		NM		NM		0.974		NM		0.865		NM		0.829		NM		0.563		NM	
Dissolved oxygen	mg/L			1.68		1.07		NM		0.51		NM		NM		2.32		NM		0.92		NM		2.38		NM		0		NM	
Oxidation Reduction Potential	mV			221		237		NM		439		NM		NM		239.2		NM		116.9		NM		167.9		NM		383		NM	
pH	pH_units			6.04		5.8		NM		4.81		NM		NM		6.42		NM		6.28		NM		5.51		NM		5.34		NM	
Temperature	C			19.63		20.32		NM		21.77		NM		NM		18.41		NM		19.21		NM		17.44		NM		20.81		NM	
Turbidity	NTU			8.5		0		NM		20.7		NM		NM		0		NM		0		NM		0		NM		2.5		NM	
Water Level at Reading Time	Ft BTOC			28.5		27.03		NM		NM		NM		NM		27.27		NM		27.73		NM		26.6		NM		26.5		NM	
GASES																															
Carbon dioxide	µg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Ethane	µg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Ethylene	µg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Methane	µg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
GEN CHEMISTRY																															
Ferrous Iron (Iron II)	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
TOTAL ORGANIC CARBON																															
Total Inorganic Carbon	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
METALS																															
Antimony	mg/L	0.006		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		< 0.001	U	< 0.001	U	NA		NA	
Manganese	mg/L	14		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
VOLATILES																															
1,1-Dichloroethene	µg/L	7		< 0.5	U	< 0.5	U	< 0.5	U	NA		< 1	U	< 1	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	NA		NA		< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70		< 0.5	U	< 0.5	U	< 0.5	U	NA		< 0.5	U	< 0.5	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	NA		NA		< 0.5	U	< 0.5	U
Tetrachloroethene	µg/L	5		< 0.5	U	< 1	U	< 1	U	NA		< 0.5	U	< 0.5	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	NA		NA		< 0.5	U	< 0.5	U
Trichloroethene	µg/L	5		1.7		2.4		2.3		NA		5.55		5.94		7.6		7.5		11		11		NA		NA		5.5		5.1	
Vinyl chloride	µg/L	2		< 0.5	U	< 0.5	U	< 0.5	U	NA		< 0.5	U	< 0.5	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	NA		NA		< 0.5	U	< 0.5	U

Table 2-3
Surface Water and Groundwater Results RA-O 2013–2021

			Location Code	35BWW25																						35BWW26			
			Sample ID	35BWW25-		35BWW25-		35BWW25-		35BWW25-		35BWW25-		35BWW25-		35BWW25-		35BWW25-		35BWW25-		35BWW25-		35BWW25-		35BWW26-		35BWW26-	
			Sample Date	8/20/2018		8/20/2018		11/16/2018		2/15/2019		2/15/2019		5/22/2019		8/7/2019		11/22/2019		11/22/2019		5/7/2020		11/10/2020		5/17/2021		8/17/2016		8/17/2016	
			Sample Event	0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		27.32 - 27.32		0 - 0		0 - 0	
			Sample Purpose	REG		FD		REG		FD		REG		REG		REG		REG		FD		REG		REG		REG		REG		REG	
Parameter	Units	MCL		Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																															
Bromide	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Chloride	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		30.2	
Fluoride	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	10		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		< 0.2	U
Nitrite	mg/L	1		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		< 0.2	U
Sulfate	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		28.7	
SULFIDE																															
Sulfide	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		< 1	U
DHC																															
Dehalococcoides	cells/mL			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
FIELD TESTS																															
Specific conductivity	µmhos/cm			0.697		NM		0.816		NM		0.705		0.746		0.749		0.639		NM		0.762		0.672		0.78		0.354		NM	
Dissolved oxygen	mg/L			0.36		NM		0.97		NM		0.16		0.82		0.85		0.76		NM		2.55		0.63		1.5		1.2		NM	
Oxidation Reduction Potential	mV			222		NM		168.5		NM		332		297		253		308		NM		173		241		259		444		NM	
pH	pH_units			5.93		NM		6.23		NM		5.30		5.56		6.34		5.94		NM		6.53		5.26		6.58		4.47		NM	
Temperature	C			29.33		NM		15.71		NM		16.92		22.7		21.94		18.70		NM		19.65		19.70		19.58		22.53		NM	
Turbidity	NTU			43.9		NM		0		NM		2		0		0		5.6		NM		8.1		22.2		0.2		0		NM	
Water Level at Reading Time	Ft BTOC			27.53		NM		27.6		NM		26.04		25.46		25.5		26.76		NM		25.58		26.17		24.57		NM		NM	
GASES																															
Carbon dioxide	µg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		417,000	
Ethane	µg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		< 2	U
Ethylene	µg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		< 2	U
Methane	µg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		< 2	U
GEN CHEMISTRY																															
Ferrous Iron (Iron II)	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
TOTAL ORGANIC CARBON																															
Total Inorganic Carbon	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		112	
Total organic carbon	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		18.2	
METALS																															
Antimony	mg/L	0.006		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Manganese	mg/L	14		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
VOLATILES																															
1,1-Dichloroethene	µg/L	7		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	NA		< 1	U
cis-1,2-Dichloroethene	µg/L	70		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	NA		< 0.5	U
Tetrachloroethene	µg/L	5		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	0.33	J	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 1	U	NA		< 0.5	U
Trichloroethene	µg/L	5		5.3		5.3		19		14		14		6.3		15		13		13		13		10		8.5		NA		< 0.5	U
Vinyl chloride	µg/L	2		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	NA		< 0.5	U

Table 2-3
Surface Water and Groundwater Results RA-O 2013–2021

			Location Code	35BWW26																						37DPT01		37DPT02	
			Sample ID	35BWW26-		35BWW26-		35BWW26-		35BWW26-		35BWW26-		35BWW26-		35BWW26-		35BWW26-		35BWW26-		35BWW26-		35BWW26-		37DPT01(25-29)		37DPT02(21-25)	
			Sample Date	11/9/2017		2/14/2018		5/22/2018		8/22/2018		11/20/2018		2/12/2019		5/20/2019		8/6/2019		11/21/2019		5/6/2020		11/10/2020		5/13/2021		7/30/2013		7/29/2013	
			Sample Event	0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		32.5 - 32.5		0 - 0		0 - 0	
			Sample Purpose	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL		Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																															
Bromide	mg/L			0.169		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Chloride	mg/L			29.6		30.2		32.2		30.3		30.2		33		30.2		29.3		30.6		31		32.6		32.9		NA		NA	
Fluoride	mg/L			0.295		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	10		0.12		< 0.05	U	0.093	J	0.036	J	0.086	J	0.146		0.126		< 0.1	U	0.0743	J	0.133		0.192		0.0817	J	NA		NA	
Nitrite	mg/L	1		0.033	J	< 0.05	U	< 0.1	U	< 0.1	U	< 0.1	U	< 0.1	U	NA		NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L			30.2		30.3		31.6		27.6		27.1		30.3		25.7		24.5		26		25.3		23.7		25		NA		NA	
SULFIDE																															
Sulfide	mg/L			< 1	U	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
DHC																															
Dehalococcoides	cells/mL			2.2		NA		< 0.5		NA		0.4	J	2.3		NA		NA		NA		NA		NA		NA		NA		NA	
FIELD TESTS																															
Specific conductivity	µmhos/cm			0.327		0.312		0.222		0.33		0.318		0.330		0.290		0.264		0.230		0.280		0.231		0.337		NM		NM	
Dissolved oxygen	mg/L			1.02		1.78		0		0.42		1.95		0.27		0.69		0.31		0.13		0.35		0.82		1.3		NM		NM	
Oxidation Reduction Potential	mV			169.6		139.8		418		277		159.6		339		306		202		301		180		237		252		NM		NM	
pH	pH_units			6.21		6.1		4.83		4.89		5.87		5.44		5.06		5.95		5.87		5.83		5.14		5.65		NM		NM	
Temperature	C			19.8		17.65		20.62		21.56		18.56		17.83		22.25		22.63		20.73		19.28		20.59		17.91		NM		NM	
Turbidity	NTU			0		0		0		0		0		0		0		0		6.7		2.7		0		0		NM		NM	
Water Level at Reading Time	Ft BTOC			28.85		28.15		27.19		28.32		28.31		26.77		25.57		25.82		27.31		26		26.37		25.73		NM		NM	
GASES																															
Carbon dioxide	µg/L			57,000		57,000		490,000		450,000	J	NA		630,000		580,000		140,000		100,000	J	87,000		330,000		330,000		NA		NA	
Ethane	µg/L			< 0.076	U	< 0.6	U	< 0.47	U	< 0.47	U	< 1	U	< 0.16	U	< 0.47	U	< 0.47	U	< 0.47	U	< 0.47	U	< 0.47	U	< 0.47	U	NA		NA	
Ethylene	µg/L			< 0.071	U	< 1	U	< 0.55	U	< 0.55	U	2.35		< 0.24	U	< 0.55	U	< 0.55	U	< 0.55	U	< 0.55	U	< 0.55	U	< 0.55	U	NA		NA	
Methane	µg/L			< 0.3	U	< 1.3	U	< 1	U	< 1	U	2.16		< 0.51	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	NA		NA	
GEN CHEMISTRY																															
Ferrous Iron (Iron II)	mg/L			0.03	NA	0.00		0.00		0.00		0.03		0		0.4		0.19		0.05		0.67		NA		0.53		NA		NA	
TOTAL ORGANIC CARBON																															
Total Inorganic Carbon	mg/L			28	NA	NA		NA		NA		NA		112		NA		NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L			0.861	J	0.762	J	1.08		0.865	J	0.94		2.81		1.82		0.56		0.44	J	2.14	J	0.51		0.857	J	NA		NA	
METALS																															
Antimony	mg/L	0.006		NA		< 0.001	U	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Manganese	mg/L	14		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
VOLATILES																															
1,1-Dichloroethene	µg/L	7		< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	11.8		< 1	U
cis-1,2-Dichloroethene	µg/L	70		< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	3.3		< 0.5	U
Tetrachloroethene	µg/L	5		< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 1	U	20.9		0.684	J
Trichloroethene	µg/L	5		< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	41.3		1.41	
Vinyl chloride	µg/L	2		< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	0.866	J	< 0.5	U

Table 2-3
Surface Water and Groundwater Results RA-O 2013–2021

			Location Code	37DPT02		37DPT03				37DPT04		37DPT05		37DPT06				37DPT07		37DPT08		37DPT09		37DPT10		37DPT11		37DPT12		LHSMW58	
			Sample ID	37DPT02(21-25)		37DPT03(26-30)		37DPT03(60-62) -		37DPT04(21-25)		37DPT05(26-30)		37DPT06(26-30)		37DPT06(70-72) -		37DPT07(26-30)		37DPT08(23-28)		37DPT09(23-28)		37DPT10(23-28)		37DPT11(23-28)		37DPT12(23-28)		LHSMW58-	
			Sample Date	7/29/2013		7/30/2013		8/27/2013		7/30/2013		7/31/2013		7/30/2013		8/26/2013		7/31/2013		5/1/2014		5/2/2014		5/3/2014		5/21/2014		5/12/2014		10/3/2013	
			Sample Event	0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0	
			Sample Purpose	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL		Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																															
Bromide	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Chloride	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Fluoride	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	10		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Nitrite	mg/L	1		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
SULFIDE																															
Sulfide	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
DHC																															
Dehalococcoides	cells/mL			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
FIELD TESTS																															
Specific conductivity	µmhos/cm			NM		NM		NM		NM		NM		NM		NM		NM		NM		NM		NM		NM		NM		0.232	
Dissolved oxygen	mg/L			NM		NM		NM		NM		NM		NM		NM		NM		NM		NM		NM		NM		NM		2.39	
Oxidation Reduction Potential	mV			NM		NM		NM		NM		NM		NM		NM		NM		NM		NM		NM		NM		NM		189	
pH	pH_units			NM		NM		NM		NM		NM		NM		NM		NM		NM		NM		NM		NM		NM		4.88	
Temperature	C			NM		NM		NM		NM		NM		NM		NM		NM		NM		NM		NM		NM		NM		22.72	
Turbidity	NTU			NM		NM		NM		NM		NM		NM		NM		NM		NM		NM		NM		NM		NM		1.5	
Water Level at Reading Time	Ft BTOC			NM		NM		NM		NM		NM		NM		NM		NM		NM		NM		NM		NM		NM		NM	
GASES																															
Carbon dioxide	µg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Ethane	µg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Ethylene	µg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Methane	µg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
GEN CHEMISTRY																															
Ferrous Iron (Iron II)	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
TOTAL ORGANIC CARBON																															
Total Inorganic Carbon	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L			NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
METALS																															
Antimony	mg/L	0.006		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Manganese	mg/L	14		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
VOLATILES																															
1,1-Dichloroethene	µg/L	7		< 1	U	< 1	U	< 1.3	UV,T	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	9.14		< 1	U	< 1	U	< 1	U	14.3		NA	
cis-1,2-Dichloroethene	µg/L	70		< 0.5	U	< 0.5	U	< 1.3	UV,T	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	1.77		< 0.5	U	< 0.5	U	0.261	J	4.03		NA	
Tetrachloroethene	µg/L	5		0.549	J	< 0.5	U	< 2.5	UV,T	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	37.6		23		2.41		< 0.5	U	< 0.5	U	< 4.03	UJ	NA	
Trichloroethene	µg/L	5		1.17		< 0.5	U	< 1.3	UV,T	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	5.02		45.3		34.6		< 0.5	U	1.31		38.6		NA	
Vinyl chloride	µg/L	2		< 0.5	U	< 0.5	U	< 1.3	UV,T	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	0.907	J	< 0.5	U	< 0.5	U	< 0.5	U	1.05		NA	

Table 2-3
Surface Water and Groundwater Results RA-O 2013–2021

			Location Code		LHSMW58																					
			Sample ID		LHSMW58-		LHSMW58-		LHSMW58FD-		LHSMW58-		LHSMW58-		LHSMW58-		LHSMW58-		LHSMW58-		LHSMW58-		LHSMW58-		LHSMW58-	
			Sample Date		10/3/2013		10/20/2015		10/20/2015		10/20/2015		12/22/2015		12/22/2015		2/17/2016		2/17/2016		8/18/2016		8/18/2016		11/8/2017		2/12/2018		3/27/2018		5/24/2018	
			Sample Event		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0	
			Sample Purpose		REG		REG		FD		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																														
Bromide	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Chloride	mg/L		9.83		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Fluoride	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	10	2.32		NA		3.04		3.06		NA		3.07		NA		1.05		NA		NA		NA		NA		NA		NA	
Nitrite	mg/L	1	< 0.2	U	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L		34.9		NA		36		36.4		NA		17.5		NA		12.4		NA		NA		NA		NA		NA		NA	
SULFIDE																														
Sulfide	mg/L		< 1	U	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
DHC																														
Dehalococcoides	cells/mL		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
FIELD TESTS																														
Specific conductivity	µmhos/cm		NM		0.23		NM		NM		0.244		NM		0.189		NM		0.289		NM		0.240		0.241		0.203		0.148	
Dissolved oxygen	mg/L		NM		2.71		NM		NM		6.41		NM		3.11		NM		2.48		NM		2.6		5.8		6.5		2.45	
Oxidation Reduction Potential	mV		NM		159		NM		NM		143		NM		306		NM		440		NM		138.8		96.5		213		386	
pH	pH_units		NM		6.67		NM		NM		6.5		NM		4.96		NM		4.14		NM		5.98		6.75		5.64		5.14	
Temperature	C		NM		19.23		NM		NM		21.15		NM		17.82		NM		20.43		NM		17.7		15.86		22.76		20.74	
Turbidity	NTU		NM		8.3		NM		NM		0		NM		6.5		NM		0.8		NM		0		0		0		0	
Water Level at Reading Time	Ft BTOC		NM		NM		NM		NM		NM		NM		NM		NM		NM		NM		25.2		24.95		24		24.05	
GASES																														
Carbon dioxide	µg/L				NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Ethane	µg/L		< 2	U	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Ethylene	µg/L		< 2	U	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Methane	µg/L		< 3.1	U	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
GEN CHEMISTRY																														
Ferrous Iron (Iron II)	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
TOTAL ORGANIC CARBON																														
Total Inorganic Carbon	mg/L		53.9		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L		4.43		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
METALS																														
Antimony	mg/L	0.006	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		< 0.001	U	NA	
Manganese	mg/L	14	NA		NA		0.00702		0.00672		NA		0.00822		NA		0.016		NA		NA		NA		NA		NA		NA	
VOLATILES																														
1,1-Dichloroethene	µg/L	7	< 1	U	NA		NA		NA		NA		NA		NA		NA		NA		< 1	U	< 1	U	< 0.5	U	NA		< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	< 0.5	U	NA		NA		NA		NA		NA		NA		NA		NA		< 0.5	U	< 1	U	< 0.5	U	NA		< 0.5	U
Tetrachloroethene	µg/L	5	20.3		NA		NA		NA		NA		NA		NA		NA		NA		19.9		20		14		NA		12	
Trichloroethene	µg/L	5	4.26		NA		NA		NA		NA		NA		NA		NA		NA		1.93		1.6		< 0.5	U	NA		1.4	
Vinyl chloride	µg/L	2	< 0.5	U	NA		NA		NA		NA		NA		NA		NA		NA		< 0.5	U	< 1	U	< 0.5	U	NA		< 0.5	U

Table 2-3
Surface Water and Groundwater Results RA-O 2013–2021

			Location Code		LHSMW58																	
			Sample ID		LHSMW58-		LHSMW58-		LHSMW58-		LHSMW58-		LHSMW58-		LHSMW58-		LHSMW58-		LHSMW58-		LHSMW58-	
			Sample Date		8/20/2018		11/18/2018		11/18/2018		2/13/2019		5/22/2019		8/7/2019		11/22/2019		5/11/2020		11/9/2020		5/13/2021	
			Sample Event		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		0 - 0		29.18 - 29.18	
			Sample Purpose		REG		FD		REG		REG		REG		REG		REG		REG		REG		REG	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
ANIONS																						
Bromide	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Chloride	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Fluoride	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	10	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Nitrite	mg/L	1	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
SULFIDE																						
Sulfide	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
DHC																						
Dehalococcoides	cells/mL		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
FIELD TESTS																						
Specific conductivity	µmhos/cm		0.257		NM		0.233		0.200		0.235		0.24		0.167		0.219		0.193		0.233	
Dissolved oxygen	mg/L		1.37		NM		5.01		6.26		3.25		4.88		5.11		3.02		2.33		1.82	
Oxidation Reduction Potential	mV		228		NM		143.9		355		302		223		278		207		213		192	
pH	pH_units		5.43		NM		6.63		7.02		5.39		6.76		6.63		6.22		5.59		6.37	
Temperature	C		25.78		NM		19.56		16.4		21.96		22.29		19.56		17.95		21.15		19.28	
Turbidity	NTU		42.3		NM		0		1		0		0		5.5		6.3		3.5		0.5	
Water Level at Reading Time	Ft BTOC		25.43		NM		24.24		23.22		20.45		22.36		24.45		21.72		23.61		19.85	
GASES																						
Carbon dioxide	µg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Ethane	µg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Ethylene	µg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Methane	µg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
GEN CHEMISTRY																						
Ferrous Iron (Iron II)	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
TOTAL ORGANIC CARBON																						
Total Inorganic Carbon	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
METALS																						
Antimony	mg/L	0.006	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Manganese	mg/L	14	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
VOLATILES																						
1,1-Dichloroethene	µg/L	7	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	UJ	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	UJ	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Tetrachloroethene	µg/L	5	26		25		26		6.1		3.6		6.8		4.2		14		9.5		19	
Trichloroethene	µg/L	5	2.2		1.8		1.8		< 0.5	U	< 0.5	U	0.59	J-	< 0.5	U	0.88	J	0.81	J	1.1	
Vinyl chloride	µg/L	2	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U

Notes:

Bold and highlighted values indicate result exceeds the MCL.

µg/L - micrograms per liter

µmhos/cm - micromhos per centimeter

C - degrees Celsius

J - The analyte was positively identified; the reported value is the estimated concentration of the constituent detected in the sample analyzed.

U - Not detected. The analyte was analyzed for, but not detected above the associated reporting limit.

UJ - The analyte was analyzed for, but not detected above the established reporting limit. However, review and evaluation of supporting QC data have indicated that the "non-detect" may be inaccurate or imprecise. The non-detect result should be estimated.

cells/mL - cells per milliliter

DHC - Dehalococcoides

FD - field duplicate

Ft BTOC - feet below top of casing

GW-Ind - groundwater medium-specific concentration for industrial use

ID - identifier

MCL - maximum contaminant level

mg/L - milligrams per Liter

mS/cm - millisiemens per centimeter

mV - millivolts

NA - not analyzed

NM - not measured

NTU - nephelometric turbidity unit

REG - regular sample

SIM - selected ion monitoring

SU - standard unit

SVOC - semivolatile organic compound

Val Qual - validation qualifier

VOC - volatile organic compound

Table 2-4
COC Concentrations 1994–2021

Location Code			35BSW01								35BSW02								35BWW01									
Sample ID			35BSW01-		35BSW01-		35BSW01-		35BSW01-		35BSW02-		35BSW02-		35BSW02-		35BSW02-		35BWW01-		35BWW01-		35BWW01-		35BWW01-		35BWW01-	
Sample Date			10/17/2013		2/12/2018		11/16/2018		5/11/2020		10/17/2013		2/12/2018		11/16/2018		5/11/2020		11/8/1998		9/10/2004		8/10/2006		12/17/2006		8/19/2016	
Sample Purpose			REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Location Description			Surface Water Location, Upgradient		Surface Water Location, Upgradient		Surface Water Location, Upgradient		Surface Water Location, Upgradient		Surface Water Location, Downgradient		Surface Water Location, Downgradient		Surface Water Location, Downgradient		Surface Water Location, Downgradient		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Tetrachloroethene	µg/L	5	0.5	U	0.5	U	0.5	U	1	U	0.5	U	0.5	U	0.5	U	1	U	1	U	5	U	5	U	5	U	0.5	U
Trichloroethene	µg/L	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U	5	U	5	U	5	U	0.5	U
1,1-Dichloroethene	µg/L	7	1	U	0.5	U	0.5	U	0.5	U	1	U	0.5	U	0.5	U	0.5	U	1	U	5	U	5	U	5	U	1	U
cis-1,2-Dichloroethene	µg/L	70	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U	5	U	10	U	10	U	0.5	U
Vinyl chloride	µg/L	2	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U	5	U	10	U	10	U	0.5	U

Table 2-4
COC Concentrations 1994–2021

Location Code			35BWW01																							
Sample ID			35BWW01-		35BWW01-		35BWW01-		35BWW01-		35BWW01-		35BWW01-		35BWW01-		35BWW01-		35BWW01-		35BWW01-		35BWW01-		35BWW01-	
Sample Date			11/8/2017		2/14/2018		5/24/2018		5/24/2018		8/16/2018		8/16/2018		11/15/2018		2/12/2019		2/12/2019		5/20/2019		5/20/2019		8/5/2019		8/5/2019	
Sample Purpose			REG		REG		REG		FD		FD		REG		REG		REG		FD		REG		FD		REG		FD	
Location Description			Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Tetrachloroethene	µg/L	5	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Trichloroethene	µg/L	5	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1-Dichloroethene	µg/L	7	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
cis-1,2-Dichloroethene	µg/L	70	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Vinyl chloride	µg/L	2	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

Table 2-4
COC Concentrations 1994–2021

Location Code			35BWW01										35BWW02				35BWW03									
Sample ID			35BWW01-		35BWW01-		35BWW01-		35BWW01-		35BWW01-		35BWW02-		35BWW02-		35BWW03-		35BWW03-		35BWW03-		35BWW03-		35BWW03-	
Sample Date			11/21/2019		5/6/2020		5/6/2020		11/9/2020		5/13/2021		11/5/1998		11/8/1998		9/10/2004		8/9/2006		8/9/2006		12/16/2006		10/5/2013		8/18/2016	
Sample Purpose			REG		FD		REG		REG		REG		FD		REG		REG		REG		FD		REG		REG		REG	
Location Description			Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary						Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Tetrachloroethene	µg/L	5	0.5	U	1	U	1	U	0.5	U	1	U	1	U	1	U	5	U	5	U	5	U	5	U	0.5	U	0.5	U
Trichloroethene	µg/L	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	5	U	5	U	5	U	5	U	0.5	U	0.5	U
1,1-Dichloroethene	µg/L	7	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	5	U	5	U	5	U	5	U	1	U	1	U
cis-1,2-Dichloroethene	µg/L	70	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	5	U	10	U	10	U	10	U	0.5	U	0.5	U
Vinyl chloride	µg/L	2	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	5	U	10	U	10	U	10	U	0.5	U	0.5	U

Table 2-4
COC Concentrations 1994–2021

Location Code			35BWW03		35BWW04																						
Sample ID			35BWW03FD-		35BWW04-		35BWW04-		35BWW04-		35BWW04-		35BWW04-		35BWW04-		35BWW04-		35BWW04-		35BWW04-		35BWW04-		35BWW04-		35BWW04-	
Sample Date			8/18/2016		12/16/2006		10/3/2013		8/17/2016		11/9/2017		11/9/2017		2/14/2018		2/14/2018		5/22/2018		8/22/2018		11/20/2018		11/20/2018		2/13/2019	
Sample Purpose			FD		REG		REG		REG		REG		FD		REG		FD		REG		REG		FD		REG		REG	
Location Description			Shallow zone, unimpacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Tetrachloroethene	µg/L	5	0.5	U	30.1		66.5		6.1		7.3		8.2		10		10		5.3		2.2		5.3		6.3		5.3	
Trichloroethene	µg/L	5	0.5	U	10.8		11.4		0.786	J	1		1.1		1.3		1.2		0.5	U	0.5	U	0.73	J	0.95	J	0.59	J
1,1-Dichloroethene	µg/L	7	1	U	3.34	J	2.3	J	1	U	1	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
cis-1,2-Dichloroethene	µg/L	70	0.5	U	0.846	J	0.673	J	0.5	U	1	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Vinyl chloride	µg/L	2	0.5	U	10	U	0.5	U	0.5	U	1	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

Table 2-4
COC Concentrations 1994–2021

Location Code			35BWW04														35BWW05											
Sample ID			35BWW04-		35BWW04-		35BWW04-		35BWW04-		35BWW04-		35BWW04-		35BWW04-		35BWW05-		35BWW05-		35BWW05-		35BWW05-		35BWW05-		35BWW05-	
Sample Date			5/20/2019		8/5/2019		11/21/2019		11/21/2019		5/6/2020		11/10/2020		5/13/2021		12/14/2006		10/4/2013		8/18/2016		11/8/2017		2/16/2018		5/21/2018	
Sample Purpose			REG		REG		REG		FD		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Location Description			Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Tetrachloroethene	µg/L	5	4.7		7.9		8.3		7.7		6.4		5.2		6.8		1	J	1.57		1.25		1.5		2.8		2	
Trichloroethene	µg/L	5	0.58	J	0.93	J	0.93	J	0.93	J	0.71	J	0.72	J	0.61	J	12.9		14		8.87		7		10		8.5	
1,1-Dichloroethene	µg/L	7	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	5	U	1	U	1	U	1	U	0.5	U	0.5	U
cis-1,2-Dichloroethene	µg/L	70	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	10	U	0.295	J	0.497	J	1	U	0.5	U	0.5	U
Vinyl chloride	µg/L	2	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	10	U	0.5	U	0.5	U	1	U	0.5	U	0.5	U

Table 2-4
COC Concentrations 1994–2021

Location Code			35BWW05																35BWW06							
Sample ID			35BWW05-		35BWW05-		35BWW05-		35BWW05-		35BWW05-		35BWW05-		35BWW05-		35BWW05-		35BWW06-		35BWW06-		35BWW06FD-		35BWW06-	
Sample Date			8/21/2018		11/18/2018		2/13/2019		5/21/2019		8/6/2019		11/25/2019		5/6/2020		11/9/2020		5/13/2021		12/14/2006		10/4/2013		8/18/2016		8/18/2016	
Sample Purpose			REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		FD		REG	
Location Description			Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Lower shallow zone, unimpacted, within site boundary		Lower shallow zone, unimpacted, within site boundary		Lower shallow zone, unimpacted, within site boundary		Lower shallow zone, unimpacted, within site boundary	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Tetrachloroethene	µg/L	5	1.7		2.7		1.9		1.1		1.9		1.4		2.4		2.1		2.5		5	U	0.5	U	0.5	U	0.5	U
Trichloroethene	µg/L	5	7.3		12		9.6		5.5		8.6		6		7.3		5.5		6.3		5	U	0.5	U	0.5	U	0.5	U
1,1-Dichloroethene	µg/L	7	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	5	U	1	U	1	U	1	U
cis-1,2-Dichloroethene	µg/L	70	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	10	U	0.5	U	0.5	U	0.5	U
Vinyl chloride	µg/L	2	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	10	U	0.5	U	0.5	U	0.5	U

Table 2-4
COC Concentrations 1994–2021

Location Code			35BWW06										35BWW07													
Sample ID			35BWW06-		35BWW06-		35BWW06-		35BWW06-		35BWW06-		35BWW07-		35BWW07-		35BWW07-		35BWW07-		35BWW07-		35BWW07-		35BWW07-	
Sample Date			11/8/2017		2/16/2018		5/21/2018		8/21/2018		11/18/2018		9/14/2007		10/5/2013		8/19/2016		11/9/2017		2/13/2018		5/23/2018		8/20/2018		11/18/2018	
Sample Purpose			REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Location Description			Lower shallow zone, unimpacted, within site boundary		Lower shallow zone, unimpacted, within site boundary		Lower shallow zone, unimpacted, within site boundary		Lower shallow zone, unimpacted, within site boundary		Lower shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted downgradient		Shallow zone, unimpacted downgradient		Shallow zone, unimpacted downgradient		Shallow zone, unimpacted downgradient		Shallow zone, unimpacted downgradient		Shallow zone, unimpacted downgradient		Shallow zone, unimpacted downgradient		Shallow zone, unimpacted downgradient	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Tetrachloroethene	µg/L	5	1	U	0.5	U	0.5	U	0.5	U	0.5	U	1		0.5	U	0.5	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U
Trichloroethene	µg/L	5	1	U	0.5	U	0.5	U	0.5	U	0.5	U	1		0.5	U	0.5	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1-Dichloroethene	µg/L	7	1	U	0.5	U	0.5	U	0.5	U	0.5	U	1		1	U	1	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U
cis-1,2-Dichloroethene	µg/L	70	1	U	0.5	U	0.5	U	0.5	U	0.5	U	1		0.5	U	0.5	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U
Vinyl chloride	µg/L	2	1	U	0.5	U	0.5	U	0.5	U	0.5	U	1		0.5	U	0.5	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U

Table 2-4
COC Concentrations 1994–2021

Location Code			35BWW07														35BWW08											
Sample ID			35BWW07-		35BWW07-		35BWW07-		35BWW07-		35BWW07-		35BWW07-		35BWW07-		35BWW08-		35BWW08-		35BWW08-		35BWW08-		35BWW08-		35BWW08-	
Sample Date			2/14/2019		5/22/2019		8/5/2019		11/25/2019		5/11/2020		11/11/2020		5/17/2021		9/14/2007		9/14/2007		10/9/2013		8/17/2016		11/7/2017		2/14/2018	
Sample Purpose			REG		REG		REG		REG		REG		REG		REG		FD		REG		REG		REG		REG		REG	
Location Description			Shallow zone, unimpacted downgradient		Shallow zone, unimpacted downgradient		Shallow zone, unimpacted downgradient		Shallow zone, unimpacted downgradient		Shallow zone, unimpacted downgradient		Shallow zone, unimpacted downgradient		Shallow zone, unimpacted downgradient		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Tetrachloroethene	µg/L	5	0.5	U	0.5	U	0.5	U	0.5	U	1	U	0.5	U	1	U	0.955	J	0.981	J	0.5	U	0.5	U	1	U	0.5	U
Trichloroethene	µg/L	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	151		150		43.8		1.01		0.89	J	0.5	U
1,1-Dichloroethene	µg/L	7	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1		1		1	U	1	U	1	U	0.5	U
cis-1,2-Dichloroethene	µg/L	70	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.388	J	0.407		0.5	U	0.5	U	1	U	0.5	U
Vinyl chloride	µg/L	2	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1		1		0.5	U	0.5	U	1	U	0.5	U

Table 2-4
COC Concentrations 1994–2021

Location Code			35BWW08																					35BWW09			
Sample ID			35BWW08-		35BWW08-		35BWW08-		35BWW08-		35BWW08-		35BWW08-		35BWW08-		35BWW08-		35BWW08-		35BWW08-		35BWW08-	35BWW09-		35BWW09-	
Sample Date			5/23/2018		8/22/2018		11/20/2018		2/12/2019		5/20/2019		8/5/2019		11/21/2019		5/6/2020		11/11/2020		11/11/2020		5/13/2021	10/8/2013		8/16/2016	
Sample Purpose			REG		REG		REG		REG		REG		REG		REG		REG		REG		FD		REG	REG		REG	
Location Description			Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary	Shallow zone, impacted outside site boundary		Shallow zone, impacted outside site boundary	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Tetrachloroethene	µg/L	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	0.5	U	0.5	U
Trichloroethene	µg/L	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	49		149	
1,1-Dichloroethene	µg/L	7	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U
cis-1,2-Dichloroethene	µg/L	70	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.529	J	0.759	J
Vinyl chloride	µg/L	2	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

Table 2-4
COC Concentrations 1994–2021

Location Code			35BWW09																								35BWW10	
Sample ID			35BWW09-		35BWW09-		35BWW09-		35BWW09-		35BWW09-		35BWW09-		35BWW09-		35BWW09-		35BWW09-		35BWW09-		35BWW09-		35BWW09-		35BWW10FD-	
Sample Date			11/7/2017		2/13/2018		5/21/2018		8/16/2018		11/19/2018		2/13/2019		5/21/2019		8/5/2019		11/26/2019		5/11/2020		11/9/2020		5/17/2021		10/4/2013	
Sample Purpose			REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		FD	
Location Description			Shallow zone, impacted outside site boundary		Shallow zone, impacted outside site boundary		Shallow zone, impacted outside site boundary		Shallow zone, impacted outside site boundary		Shallow zone, impacted outside site boundary		Shallow zone, impacted outside site boundary		Shallow zone, impacted outside site boundary		Shallow zone, impacted outside site boundary		Shallow zone, impacted outside site boundary		Shallow zone, impacted outside site boundary		Shallow zone, impacted outside site boundary		Shallow zone, impacted outside site boundary		Shallow, impacted, within site boundary	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Tetrachloroethene	µg/L	5	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	41		0.5	U	0.5	U	1	U	0.5	U	1	U	4.52	
Trichloroethene	µg/L	5	180		180		240		180		580		410		20		70	J	47		42		23		13		56.9	
1,1-Dichloroethene	µg/L	7	0.84	J	0.5	U	0.5	U	0.5	U	0.78	J	0.5	U	5.5		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U
cis-1,2-Dichloroethene	µg/L	70	1.7		0.5	U	0.96	J	0.84	J	1.9		1.1		1.8		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Vinyl chloride	µg/L	2	1	U	0.5	U	0.5	U	0.5	U	0.6	J	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

Table 2-4
COC Concentrations 1994–2021

Location Code			35BWW10																								
Sample ID			35BWW10-		35BWW10-		35BWW10-		35BWW10-		35BWW10-		35BWW10-		35BWW10-		35BWW10-		35BWW10-		35BWW10-		35BWW10-		35BWW10-		35BWW10-	
Sample Date			10/4/2013		8/18/2016		11/7/2017		2/16/2018		5/24/2018		8/17/2018		11/18/2018		2/12/2019		5/20/2019		8/6/2019		11/26/2019		5/6/2020		11/9/2020	
Sample Purpose			REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Location Description			Shallow, impacted, within site boundary		Shallow, impacted, within site boundary		Shallow, impacted, within site boundary		Shallow, impacted, within site boundary		Shallow, impacted, within site boundary		Shallow, impacted, within site boundary		Shallow, impacted, within site boundary		Shallow, impacted, within site boundary		Shallow, impacted, within site boundary		Shallow, impacted, within site boundary		Shallow, impacted, within site boundary		Shallow, impacted, within site boundary		Shallow, impacted, within site boundary	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Tetrachloroethene	µg/L	5	4.45		21		31		29		30		24		45		37		5.5		1.6		0.84	J	1	U	0.5	U
Trichloroethene	µg/L	5	56.3		23.9		33		39		36		28		53		50		9.4		2.6		0.9	J	0.64	J	0.5	U
1,1-Dichloroethene	µg/L	7	1	U	1	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
cis-1,2-Dichloroethene	µg/L	70	0.5	U	0.5	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Vinyl chloride	µg/L	2	0.5	U	0.5	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

Table 2-4
COC Concentrations 1994–2021

Location Code			35BWW10		35BWW11																					
Sample ID			35BWW10-		35BWW11-		35BWW11-		35BWW11-		35BWW11-		35BWW11-		35BWW11-		35BWW11-		35BWW11-		35BWW11-		35BWW11-		35BWW11-	
Sample Date			5/13/2021		10/8/2013		8/18/2016		11/8/2017		2/12/2018		5/21/2018		8/17/2018		11/18/2018		2/13/2019		5/21/2019		8/7/2019		11/21/2019		5/6/2020	
Sample Purpose			REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Location Description			Shallow, impacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Tetrachloroethene	µg/L	5	1	U	0.252	J	0.798	J	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U
Trichloroethene	µg/L	5	0.5	U	0.5	U	0.5	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1-Dichloroethene	µg/L	7	0.5	U	1	U	1	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
cis-1,2-Dichloroethene	µg/L	70	0.5	U	0.5	U	0.5	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Vinyl chloride	µg/L	2	0.5	U	0.5	U	0.5	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

Table 2-4
COC Concentrations 1994–2021

			Location Code	35BWW11				35BWW12																	
			Sample ID	35BWW11-		35BWW11-		35BWW12-		35BWW12-		35BWW12-		35BWW12-		35BWW12-		35BWW12-		35BWW12-		35BWW12-		35BWW12-	
			Sample Date	11/9/2020		5/17/2021		10/3/2013		8/17/2016		11/9/2017		2/14/2018		5/23/2018		5/23/2018		8/22/2018		8/22/2018		11/20/2018		2/13/2019		2/13/2019	
			Sample Purpose	REG		REG		REG		REG		REG		REG		REG		FD		REG		FD		REG		FD		REG	
			Location Description	Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Tetrachloroethene	µg/L	5	0.5	U	1	U	15.3		4.06		4.8		7.1		6.2		7		7.3		7.6		8.7		8.2		8	
Trichloroethene	µg/L	5	0.5	U	0.5	U	2.04		0.473	J	0.62	J	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.92	J	0.88	J	0.91	J
1,1-Dichloroethene	µg/L	7	0.5	U	0.5	U	1	U	1	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
cis-1,2-Dichloroethene	µg/L	70	0.5	U	0.5	U	0.5	U	0.5	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Vinyl chloride	µg/L	2	0.5	U	0.5	U	0.5	U	0.5	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

Table 2-4
COC Concentrations 1994–2021

Location Code			35BWW12																				35BWW13					
Sample ID			35BWW12-		35BWW12-		35BWW12-		35BWW12-		35BWW12-		35BWW12-		35BWW12-		35BWW12-		35BWW12-		35BWW12-		35BWW13-		35BWW13-		35BWW13-	
Sample Date			5/21/2019		5/21/2019		8/5/2019		8/5/2019		11/25/2019		5/6/2020		5/6/2020		11/11/2020		5/18/2021		5/18/2021		10/7/2013		8/19/2016		11/7/2017	
Sample Purpose			FD		REG		FD		REG		REG		REG		FD		REG		FD		REG		REG		REG		FD	
Location Description			Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, unimpacted, crossgradient		Shallow zone, unimpacted, crossgradient		Shallow zone, unimpacted, crossgradient	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Tetrachloroethene	µg/L	5	5.7		6.2		6.3		5.8		5.8		8.5		8.5		3.1		3.6		3.4		4.14		0.5	U	0.84	J
Trichloroethene	µg/L	5	0.53	J	0.55	J	0.53	J	0.5	U	0.55	J	0.61	J	0.72	J	0.5	U	0.5	U	0.5	U	1.84		0.5	U	1	U
1,1-Dichloroethene	µg/L	7	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U
cis-1,2-Dichloroethene	µg/L	70	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U
Vinyl chloride	µg/L	2	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U

Table 2-4
COC Concentrations 1994–2021

Location Code			35BWW13																							
Sample ID			35BWW13-		35BWW13-		35BWW13-		35BWW13-		35BWW13-		35BWW13-		35BWW13-		35BWW13-		35BWW13-		35BWW13-		35BWW13-		35BWW13-	
Sample Date			11/7/2017		2/13/2018		2/13/2018		2/13/2018		5/24/2018		8/21/2018		11/16/2018		2/14/2019		5/22/2019		8/6/2019		11/25/2019		5/7/2020		11/11/2020	
Sample Purpose			REG		FD		REG		FD		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Location Description			Shallow zone, unimpacted, crossgradient		Shallow zone, unimpacted, crossgradient		Shallow zone, unimpacted, crossgradient		Shallow zone, unimpacted, crossgradient		Shallow zone, unimpacted, crossgradient		Shallow zone, unimpacted, crossgradient		Shallow zone, unimpacted, crossgradient		Shallow zone, unimpacted, crossgradient		Shallow zone, unimpacted, crossgradient		Shallow zone, unimpacted, crossgradient		Shallow zone, unimpacted, crossgradient		Shallow zone, unimpacted, crossgradient		Shallow zone, unimpacted, crossgradient	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Tetrachloroethene	µg/L	5	0.99	J	1.9		1.9		1.9		0.5	U	0.5	U	1.1		0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U
Trichloroethene	µg/L	5	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1-Dichloroethene	µg/L	7	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
cis-1,2-Dichloroethene	µg/L	70	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Vinyl chloride	µg/L	2	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

Table 2-4
COC Concentrations 1994–2021

Location Code			35BWW13		35BWW14																						
Sample ID			35BWW13-		35BWW14-		35BWW14-		35BWW14-		35BWW14-		35BWW14-		35BWW14-		35BWW14-		35BWW14-		35BWW14-		35BWW14-		35BWW14-		35BWW14-	
Sample Date			5/17/2021		10/9/2013		8/17/2016		11/7/2017		2/15/2018		5/22/2018		8/22/2018		11/20/2018		2/12/2019		5/21/2019		8/6/2019		11/25/2019		5/7/2020	
Sample Purpose			REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Location Description			Shallow zone, unimpacted, crossgradient		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Tetrachloroethene	µg/L	5	1	U	19		20.1		53		44		30		31		37		37		0.5	U	38		38		40	
Trichloroethene	µg/L	5	0.5	U	82.8		39.7		24		20		23		12		9.1		22		110		15		16		14	
1,1-Dichloroethene	µg/L	7	0.5	U	57.2		10		8.4		0.5	U	5.1		2.2		2.2		5.6		0.5	U	4.2		4.6		3.6	
cis-1,2-Dichloroethene	µg/L	70	0.5	U	14.3		3.44		2.4		1.1		2.6		1.4		0.91	J	2.1		0.66	J	1.3		1.5		1.2	
Vinyl chloride	µg/L	2	0.5	U	5.09		0.301	J	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

Table 2-4
COC Concentrations 1994–2021

			Location Code	35BWW14				35BWW15																	
			Sample ID	35BWW14-		35BWW14-		35BWW15-		35BWW15-		35BWW15-		35BWW15-		35BWW15-		35BWW15-		35BWW15-		35BWW15-		35BWW15-	
			Sample Date	11/10/2020		5/18/2021		1/14/2014		8/19/2016		11/7/2017		2/13/2018		5/21/2018		8/20/2018		11/16/2018		11/16/2018		2/14/2019		5/22/2019		8/7/2019	
			Sample Purpose	REG		REG		REG		REG		REG		REG		REG		REG		REG		FD		REG		REG		REG	
			Location Description	Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary	
Parameter	Units	MCL		Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Tetrachloroethene	µg/L	5		23		27		8.69		14.5		12		12		13		11		11		10		12		7.8		9.7	
Trichloroethene	µg/L	5		7.7		6.9		43.5		20.5		15		14		13		9.2		12		12		11		7.1		7.6	
1,1-Dichloroethene	µg/L	7		2.1		1.8		35.5		6.63		4.2		2.2		3.4		1.7		2.6		2.2		1.9		0.5	U	1.1	
cis-1,2-Dichloroethene	µg/L	70		0.64	J	0.5	U	6.25		1.73		1.1		0.5	U	0.5	U	0.5	U	0.68	J	0.5	U	0.65	J	0.5	U	0.39	J
Vinyl chloride	µg/L	2		0.5	U	0.5	U	3.42		0.5	U	1	U	0.5	U	0.5	U	0.5	U	0.63	J	0.63	J	0.5	U	0.5	U	0.5	U

Table 2-4
COC Concentrations 1994–2021

Location Code			35BWW15										35BWW16													
Sample ID			35BWW15-		35BWW15-		35BWW15-		35BWW15-		35BWW15-		35BWW16FD-		35BWW16-		35BWW16-		35BWW16-		35BWW16-		35BWW16-		35BWW16-	
Sample Date			11/22/2019		11/22/2019		5/7/2020		11/10/2020		5/18/2021		10/7/2013		10/7/2013		8/19/2016		11/7/2017		2/13/2018		5/24/2018		8/17/2018		11/16/2018	
Sample Purpose			REG		FD		REG		REG		REG		FD		REG		REG		REG		REG		REG		REG		REG	
Location Description			Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, outside site boundary		Shallow zone, impacted, outside site boundary		Shallow zone, impacted, outside site boundary		Shallow zone, impacted, outside site boundary		Shallow zone, impacted, outside site boundary		Shallow zone, impacted, outside site boundary		Shallow zone, impacted, outside site boundary		Shallow zone, impacted, outside site boundary	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Tetrachloroethene	µg/L	5	11		11		13		11		14		0.447	J	0.447	J	5.13		9.2		12		7.8		6.6		15	
Trichloroethene	µg/L	5	7.8		7.6		7.7		5.4		6.2		2.45		2.57		3.43		4.2		5.8		4		3.3		6.5	
1,1-Dichloroethene	µg/L	7	1.2		1.1		0.87	J	0.74	J	0.63	J	0.846	J	0.865	J	0.787	J	1.1		0.5	U	0.5	U	0.5	U	1.5	
cis-1,2-Dichloroethene	µg/L	70	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U
Vinyl chloride	µg/L	2	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U

Table 2-4
COC Concentrations 1994–2021

Location Code			35BWW16														35BWW17											
Sample ID			35BWW16-		35BWW16-		35BWW16-		35BWW16-		35BWW16-		35BWW16-		35BWW16-		35BWW17-		35BWW17-		35BWW17-		35BWW17-		35BWW17-		35BWW17-	
Sample Date			2/15/2019		5/23/2019		8/7/2019		11/21/2019		5/7/2020		11/11/2020		5/18/2021		2/4/2014		8/19/2016		11/7/2017		2/13/2018		5/24/2018		8/21/2018	
Sample Purpose			REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Location Description			Shallow zone, impacted, outside site boundary		Shallow zone, impacted, outside site boundary		Shallow zone, impacted, outside site boundary		Shallow zone, impacted, outside site boundary		Shallow zone, impacted, outside site boundary		Shallow zone, impacted, outside site boundary		Shallow zone, impacted, outside site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Tetrachloroethene	µg/L	5	11		9.5		9.8		8.1		9.9		4.4		6		0.512	J	0.5	U	2.6		7.5		0.5	U	0.5	U
Trichloroethene	µg/L	5	4.7		3.6		3.5		3.2		3.3		1.8		2.1		0.5	U	0.5	U	1.1		2.9		0.5	U	0.5	U
1,1-Dichloroethene	µg/L	7	1		0.5	U	0.79	J	0.75	J	0.61	J	0.5	U	0.5	U	1	U	1	U	1	U	0.5	U	0.5	U	0.5	U
cis-1,2-Dichloroethene	µg/L	70	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U	0.5	U	0.5	U	0.5	U
Vinyl chloride	µg/L	2	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	UJ	0.5	U	0.5	U	0.5	U

Table 2-4
COC Concentrations 1994–2021

Location Code			35BWW17																35BWW18							
Sample ID			35BWW17-		35BWW17-		35BWW17-		35BWW17-		35BWW17-		35BWW17-		35BWW17-		35BWW17-		35BWW18-		35BWWU18-		35BWW18-		35BWW18-	
Sample Date			11/16/2018		2/14/2019		5/22/2019		8/7/2019		11/21/2019		5/7/2020		11/11/2020		5/18/2021		5/18/2021		10/2/2013		10/2/2013		8/16/2016		11/7/2017	
Sample Purpose			REG		REG		REG		REG		REG		REG		REG		FD		REG		REG		REG		REG	
Location Description			Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Tetrachloroethene	µg/L	5	5.4		0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	0.5	U	0.5	U	0.5	U	1	U
Trichloroethene	µg/L	5	1.8		0.5	U	0.5	U	0.5	UJ	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U
1,1-Dichloroethene	µg/L	7	0.5	U	0.5	U	0.5	U	0.5	UJ	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U
cis-1,2-Dichloroethene	µg/L	70	0.5	U	0.5	U	0.5	U	0.5	UJ	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U
Vinyl chloride	µg/L	2	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U

Table 2-4
COC Concentrations 1994–2021

Location Code			35BWW18																				35BWW19			
Sample ID			35BWW18-		35BWW18-		35BWW18-		35BWW18-		35BWW18-		35BWW18-		35BWW18-		35BWW18-		35BWW18-		35BWW18-		35BWW19-		35BWW19-	
Sample Date			2/13/2018		5/21/2018		8/16/2018		11/19/2018		2/14/2019		5/20/2019		8/5/2019		11/26/2019		5/11/2020		11/9/2020		5/18/2021		10/7/2013		8/16/2016	
Sample Purpose			REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Location Description			Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Tetrachloroethene	µg/L	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U	0.5	U	1	U	0.5	U	0.5	U
Trichloroethene	µg/L	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1-Dichloroethene	µg/L	7	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U
cis-1,2-Dichloroethene	µg/L	70	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Vinyl chloride	µg/L	2	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

Table 2-4
COC Concentrations 1994–2021

Location Code			35BWW19																						35BWW20	
Sample ID			35BWW19-		35BWW19-		35BWW19-		35BWW19-		35BWW19-		35BWW19-		35BWW19-		35BWW19-		35BWW19-		35BWW19-		35BWW19-		35BWW20-	
Sample Date			11/7/2017		2/13/2018		5/21/2018		8/16/2018		11/19/2018		2/14/2019		5/20/2019		8/5/2019		11/26/2019		5/11/2020		11/9/2020		5/18/2021		10/4/2013	
Sample Purpose			REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Location Description			Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, impacted, within site boundary	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Tetrachloroethene	µg/L	5	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U	0.5	U	1	U	31.1	
Trichloroethene	µg/L	5	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	7.04	
1,1-Dichloroethene	µg/L	7	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U
cis-1,2-Dichloroethene	µg/L	70	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Vinyl chloride	µg/L	2	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

Table 2-4
COC Concentrations 1994–2021

Location Code			35BWW20																							
Sample ID			35BWW20-		35BWW20-		35BWW20-		35BWW20-		35BWW20-		35BWW20-		35BWW20-		35BWW20-		35BWW20-		35BWW20-		35BMW20-		35BWW20-	
Sample Date			8/18/2016		11/8/2017		2/12/2018		5/24/2018		8/20/2018		11/18/2018		2/13/2019		5/22/2019		5/22/2019		8/6/2019		8/6/2019		11/22/2019		5/11/2020	
Sample Purpose			REG		REG		REG		REG		REG		REG		REG		FD		REG		FD		REG		REG		REG	
Location Description			Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Tetrachloroethene	µg/L	5	26.7		25		34		29		19		34		34		12		12		7.6		7.5		15		12	
Trichloroethene	µg/L	5	6.75		4.7		5.7		6.3		3.6		6.4		6		2.9		2.8		2		2.1		3.1		2.9	
1,1-Dichloroethene	µg/L	7	1	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
cis-1,2-Dichloroethene	µg/L	70	0.5	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Vinyl chloride	µg/L	2	0.5	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

Table 2-4
COC Concentrations 1994–2021

Location Code			35BWW20								35BWW23																
Sample ID			35BWW20-		35BWW20-		35BWW20-		35BWW20-		35BWW23-		35BWW23-		35BWW23-		35BWW23-		35BWW23-		35BWW23-		35BWW23-		35BWW23-		35BWW23-	
Sample Date			5/11/2020		11/9/2020		11/9/2020		5/13/2021		7/1/2014		8/17/2016		11/9/2017		2/15/2018		5/22/2018		8/22/2018		11/20/2018		2/12/2019		5/21/2019	
Sample Purpose			FD		REG		FD		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Location Description			Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Tetrachloroethene	µg/L	5	12		12		13		6.1		0.5	U	0.5	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Trichloroethene	µg/L	5	2.9		2.2		2.3		1.8		0.5	U	0.5	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1-Dichloroethene	µg/L	7	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
cis-1,2-Dichloroethene	µg/L	70	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Vinyl chloride	µg/L	2	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

Table 2-4
COC Concentrations 1994–2021

Location Code			35BWW23										35BWW24													
Sample ID			35BWW23-		35BWW23-		35BWW23-		35BWW23-		35BWW23-		35BWW24-		35BWW24-		35BWW24-		35BWW24-		35BWW24-		35BWW24-		35BWW24-	
Sample Date			8/6/2019		11/25/2019		5/7/2020		11/10/2020		5/18/2021		8/19/2016		11/8/2017		2/16/2018		5/24/2018		8/21/2018		11/16/2018		2/15/2019		5/22/2019	
Sample Purpose			REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Location Description			Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Tetrachloroethene	µg/L	5	0.5	U	0.5	U	1	U	0.5	U	1	U	0.5	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Trichloroethene	µg/L	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.415	J	1	U	0.5	U	0.5	U	0.5	U	2.9		2.6		1.1	
1,1-Dichloroethene	µg/L	7	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	0.5	U	0.5	U	0.5	U	0.67	J	0.5	U	0.5	U
cis-1,2-Dichloroethene	µg/L	70	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Vinyl chloride	µg/L	2	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

Table 2-4
COC Concentrations 1994–2021

Location Code			35BWW24												35BWW25											
Sample ID			35BWW24-		35BWW24-		35BWW24-		35BWW24-		35BWW24-		35BWW24-		35BWW25-		35BWW25FD-		35BWW25-		35BWW25-		35BWW25-		35BWW25-	
Sample Date			8/7/2019		11/25/2019		5/7/2020		11/10/2020		5/17/2021		5/17/2021		8/19/2016		8/19/2016		11/8/2017		11/8/2017		2/16/2018		2/16/2018		5/23/2018	
Sample Purpose			REG		REG		REG		REG		FD		REG		REG		FD		FD		REG		FD		REG		FD	
Location Description			Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, unimpacted, outside site boundary		Shallow zone, impacted, outside site boundary		Shallow zone, impacted, outside site boundary		Shallow zone, impacted, outside site boundary		Shallow zone, impacted, outside site boundary		Shallow zone, impacted, outside site boundary		Shallow zone, impacted, outside site boundary		Shallow zone, impacted, outside site boundary	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Tetrachloroethene	µg/L	5	0.5	U	0.5	U	1	U	0.5	U	1	U	1	U	0.5	U	0.5	U	1	U	1	U	0.5	U	0.5	U	0.5	U
Trichloroethene	µg/L	5	1.7		1.8		2.3		1.7		2.3		2.4		5.55		5.94		7.5		7.6		11		11		5.1	
1,1-Dichloroethene	µg/L	7	0.5	U	0.5	U	0.54	J	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	0.5	U	0.5	U	0.5	U
cis-1,2-Dichloroethene	µg/L	70	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	0.5	U	0.5	U	0.5	U
Vinyl chloride	µg/L	2	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	0.5	U	0.5	U	0.5	U

Table 2-4
COC Concentrations 1994–2021

Location Code			35BWW25																							
Sample ID			35BWW25-		35BWW25-		35BWW25-		35BWW25-		35BWW25-		35BWW25-		35BWW25-		35BWW25-		35BWW25-		35BWW25-		35BWW25-		35BWW25-	
Sample Date			5/23/2018		8/20/2018		8/20/2018		11/16/2018		2/15/2019		2/15/2019		5/22/2019		8/7/2019		11/22/2019		11/22/2019		5/7/2020		11/10/2020		5/17/2021	
Sample Purpose			REG		FD		REG		REG		FD		REG		REG		REG		FD		REG		REG		REG		REG	
Location Description			Shallow zone, impacted, outside site boundary		Shallow zone, impacted, outside site boundary		Shallow zone, impacted, outside site boundary		Shallow zone, impacted, outside site boundary		Shallow zone, impacted, outside site boundary		Shallow zone, impacted, outside site boundary		Shallow zone, impacted, outside site boundary		Shallow zone, impacted, outside site boundary		Shallow zone, impacted, outside site boundary		Shallow zone, impacted, outside site boundary		Shallow zone, impacted, outside site boundary		Shallow zone, impacted, outside site boundary		Shallow zone, impacted, outside site boundary	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Tetrachloroethene	µg/L	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.33	J	0.5	U	0.5	U	1	U	0.5	U	1	U
Trichloroethene	µg/L	5	5.5		5.3		5.3		19		14		14		6.3		15		13		13		13		10		8.5	
1,1-Dichloroethene	µg/L	7	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
cis-1,2-Dichloroethene	µg/L	70	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Vinyl chloride	µg/L	2	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

Table 2-4
COC Concentrations 1994–2021

Location Code			35BWW26																							
Sample ID			35BWW26-		35BWW26-		35BWW26-		35BWW26-		35BWW26-		35BWW26-		35BWW26-		35BWW26-		35BWW26-		35BWW26-		35BWW26-		35BWW26-	
Sample Date			8/17/2016		11/9/2017		2/14/2018		5/22/2018		8/22/2018		11/20/2018		2/12/2019		5/20/2019		8/6/2019		11/21/2019		5/6/2020		11/10/2020		5/13/2021	
Sample Purpose			REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Location Description			Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary		Shallow zone, unimpacted, within site boundary	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Tetrachloroethene	µg/L	5	0.5	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1	U	0.5	U	1	U
Trichloroethene	µg/L	5	0.5	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1-Dichloroethene	µg/L	7	1	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
cis-1,2-Dichloroethene	µg/L	70	0.5	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Vinyl chloride	µg/L	2	0.5	U	1	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

Table 2-4
COC Concentrations 1994–2021

Location Code			37DPT03		LHSMW58																						
Sample ID			37DPT03(60-62) -		LHSMW58-		LHSMW58-		LHSMW58-		LHSMW58-		LHSMW58-		LHSMW58-		LHSMW58-		LHSMW58-		LHSMW58-		LHSMW58-		LHSMW58-		LHSMW58-	
Sample Date			8/27/2013		12/11/1994		12/11/1994		2/10/1996		8/21/1996		5/20/1998		9/10/2004		8/9/2006		12/16/2006		10/3/2013		8/18/2016		11/8/2017		2/12/2018	
Sample Purpose			REG		REG		FD		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Location Description					Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Tetrachloroethene	µg/L	5	2.5	UV,T	21		34		8		7.9		9.5		20		21.8	J	9.01		20.3		19.9		20		14	
Trichloroethene	µg/L	5	1.3	UV,T	26				9		11.5		9.4		33		21.8	J	13.7		4.26		1.93		1.6		0.5	U
1,1-Dichloroethene	µg/L	7	1.3	UV,T	58		53		18		25.4		4.2		4	J	2.11	JH	3.17	J	1	U	1	U	1	U	0.5	U
cis-1,2-Dichloroethene	µg/L	70	1.3	UV,T					1.8		2.1		0.53	J	5	U	0.716	JH	0.629	J	0.5	U	0.5	U	1	U	0.5	U
Vinyl chloride	µg/L	2	1.3	UV,T							0.24	U	1	U	5	U	10	U	10	U	0.5	U	0.5	U	1	U	0.5	U

Table 2-4
COC Concentrations 1994–2021

Location Code			LHSMW58																						LHSMW59			
Sample ID			LHSMW58-		LHSMW58-		LHSMW58-		LHSMW58-		LHSMW58-		LHSMW58-		LHSMW58-		LHSMW58-		LHSMW58-		LHSMW58-		LHSMW59-		LHSMW59-	
Sample Date			5/24/2018		8/20/2018		11/18/2018		11/18/2018		2/13/2019		5/22/2019		8/7/2019		11/22/2019		5/11/2020		11/9/2020		5/13/2021		12/11/1994		12/11/1994	
Sample Purpose			REG		REG		REG		FD		REG		REG		REG		REG		REG		REG		REG		FD		REG	
Location Description			Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Tetrachloroethene	µg/L	5	12		26		26		25		6.1		3.6		6.8		4.2		14		9.5		19		11		11	
Trichloroethene	µg/L	5	1.4		2.2		1.8		1.8		0.5	U	0.5	U	0.59	J-	0.5	U	0.88	J	0.81	J	1.1				120	
1,1-Dichloroethene	µg/L	7	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	UJ	0.5	U	0.5	U	0.5	U	0.5	U	5	U	5	U
cis-1,2-Dichloroethene	µg/L	70	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	UJ	0.5	U	0.5	U	0.5	U	0.5	U				
Vinyl chloride	µg/L	2	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U				

Table 2-4
COC Concentrations 1994–2021

Location Code			LHSMW59											
Sample ID			LHSMW59-		LHSMW59-		LHSMW59-		LHSMW59-		LHSMW59-		LHSMW59-	
Sample Date			2/10/1996		8/21/1996		5/20/1998		9/10/2004		8/10/2006		12/13/2006	
Sample Purpose			REG		REG		REG		REG		REG		REG	
Location Description			Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary		Shallow zone, impacted, within site boundary	
Parameter	Units	MCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Tetrachloroethene	µg/L	5	16		16.9		7		3	J	1.19	J	1.15	J
Trichloroethene	µg/L	5	249		327		330		180		135		166	
1,1-Dichloroethene	µg/L	7	1	U	2.2		1	U	5	U	5	U	5	U
cis-1,2-Dichloroethene	µg/L	70	1	U	0.2	U	1	U	5	U	0.521	J	0.463	J
Vinyl chloride	µg/L	2			0.24	U	1	U	5	U	10	U	10	U

Table 2-4
COC Concentrations 1994–2021

Notes:

Blue highlighting indicates concentrations above the MCL.

Some samples may have been diluted due to the concentration(s) of one or more analytes exceeding the upper limit of the calibration curve.

µg/L - micrograms per liter

J - Estimated: The analyte was positively identified, the quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.

U - Undetected: The analyte was analyzed for, but not detected.

COC - contaminant of concern

FD - field duplicate

ID - identifier

MCL - Maximum Contaminant Limit

NR - Not reported by laboratory.

Val Qual - validation qualifier

Table 2-5
Well Maintenance Activities, Year 4 RA-O

Well ID	Date Inspected	Pads	Bollards	Protective Casings	Locks	Date Mowed	Photos	Comments
35BWW01	11/9/2020	Good	Good	Good	In Place	10/27/2020	Yes	
	5/13/2021	Good	Good	Good	In Place	5/10/2021	Yes	
35BWW04	11/10/2020	Good	Fair	Good	In Place	10/27/2020	Yes	Only one bollard is remaining. Well ID needs replacing.
	5/13/2021	Good	Fair	Good	In Place	5/10/2021	Yes	Only one bollard is remaining. Well ID needs replacing.
35BWW05	11/9/2020	Good	Good	Good	In Place	10/27/2020	Yes	
	5/13/2021	Good	Good	Good	In Place	5/10/2021	Yes	
35BWW07	11/11/2020	Good	Good	Good	In Place	10/27/2020	Yes	
	5/17/2021	Good	Good	Good	In Place	5/10/2021	Yes	
35BWW08	11/11/2020	Good	Good	Good	In Place	10/27/2020	Yes	Well ID not visible, needs to be added.
	5/13/2021	Good	Good	Good	In Place	5/10/2021	Yes	Well ID not visible, needs to be added.
35BWW09	11/9/2020	Good	Good	Good	In Place	10/27/2020	Yes	
	5/17/2021	Good	Good	Good	In Place	5/10/2021	Yes	
35BWW10	11/9/2020	Good	Good	Good	In Place	10/27/2020	Yes	
	5/13/2021	Good	Good	Good	In Place	5/10/2021	Yes	
35BWW11	11/11/2020	Good	Good	Good	In Place	10/27/2020	Yes	
	5/17/2021	Good	Good	Good	In Place	5/10/2021	Yes	
35BWW12	11/11/2020	Good	Good	Good	In Place	10/27/2020	Yes	
	5/18/2021	Good	Good	Good	In Place	5/10/2021	Yes	
35BWW13	11/9/2020	Good	Good	Good	In Place	10/27/2020	Yes	
	5/17/2021	Good	Good	Good	In Place	5/10/2021	Yes	
35BWW14	11/10/2020	Good	Good	Good	In Place	10/27/2020	Yes	
	5/18/2021	Good	Good	Good	In Place	5/10/2021	Yes	
35BWW15	11/10/2020	Good	Good	Good	In Place	10/27/2020	Yes	
	5/18/2021	Good	Good	Good	In Place	5/10/2021	Yes	
35BWW16	11/11/2020	Good	Good	Good	In Place	10/27/2020	Yes	
	5/18/2021	Good	Good	Good	In Place	5/10/2021	Yes	
35BWW17	11/11/2020	Good	Good	Good	In Place	10/27/2020	Yes	
	5/18/2021	Good	Good	Good	In Place	5/10/2021	Yes	
35BWW18	11/9/2020	Good	Good	Good	In Place	10/27/2020	Yes	
	5/18/2021	Good	Good	Good	In Place	5/10/2021	Yes	
35BWW19	11/9/2020	Good	Good	Good	In Place	10/27/2020	Yes	
	5/18/2021	Good	Good	Good	In Place	5/10/2021	Yes	
35BWW20	11/9/2020	Good	Good	Good	In Place	10/27/2020	Yes	
	5/13/2021	Good	Good	Good	In Place	5/10/2021	Yes	
35BWW23	11/10/2020	Good	Good	Good	In Place	10/27/2020	Yes	
	5/18/2021	Good	Good	Good	In Place	5/10/2021	Yes	
35BWW24	11/10/2020	Good	Good	Good	In Place	10/27/2020	Yes	
	5/17/2021	Good	Good	Good	In Place	5/10/2021	Yes	
35BWW25	11/10/2020	Good	Good	Good	In Place	10/27/2020	Yes	
	5/17/2021	Good	Good	Good	In Place	5/10/2021	Yes	
35BWW26	11/10/2020	Good	Good	Good	In Place	10/27/2020	Yes	
	5/13/2021	Good	Good	Good	In Place	5/10/2021	Yes	
LHSMW58	11/9/2020	Good	Good	Good	In Place	10/27/2020	Yes	Well ID not visible, needs to be added.
	5/13/2021	Good	Good	Good	In Place	5/10/2021	Yes	Well ID not visible, needs to be added.

Notes:

ID - identifier

RA-O - remedial action operation

Table 2-6
Year 5 RA-O Semiannual Sampling

Well ID	VOC	Field Parameters	MNA Parameters	Water Levels
35BWW01	X	X		X
35BWW02 [a]				
35BWW03 [b]	X	X		X
35BWW04	X	X	X	X
35BWW05	X	X		X
35BWW06 [b]	X	X		X
35BWW07	X	X		X
35BWW08	X	X	X	X
35BWW09	X	X		X
35BWW10	X	X		X
35BWW11	X	X		X
35BWW12	X	X	X	X
35BWW13	X	X		X
35BWW14	X	X	X	X
35BWW15	X	X		X
35BWW16	X	X		X
35BWW17	X	X		X
35BWW18	X	X		X
35BWW19	X	X		X
35BWW20	X	X		X
35BWW23	X	X	X	X
35BWW24	X	X		X
35BWW25	X	X		X
35BWW26	X	X	X	X
LHSMW58	X	X		X
35BSW01 [c]	X	X		X
35BSW02 [c]	X	X		X

Notes:

MNA parameters include nitrate, sulfate, chloride, TOC, carbon dioxide, and dissolved gases (methane, ethane, ethene).

Field parameters to be monitored for all wells: pH, temperature, conductivity, turbidity, oxidation-reduction potential (ORP), dissolved oxygen (DO), and ferrous iron.

[a] Well was removed from the sampling list.

[b] Monitoring wells 35BWW03 and 35BWW06 will continue to be sampled once every five years to support the Five Year Reviews, and the next sampling event for these wells will be in November 2021.

[c] Surface water locations to be sampled annually per the RACR - next sampling is Y4SA2, May 2021.

X - well will be analyzed for that parameter.

ID - identifier

MNA - monitored natural attenuation

RA-O - remedial action operation

RACR - Response Action Completion Report

TOC - total organic carbon

VOC - volatile organic compound

Table 3-1
RA-O Mann-Kendall Trend Summary, LHAAP-35B (37)

Monitoring Well	PCE	TCE
35BWW04	No Trend	NA
35BWW05	NA	Decrease
35BWW09	NA	Decrease
35BWW12	Stable	NA
35BWW14	No Trend	Decrease
35BWW15	Stable	Decrease
35BWW16	No Trend	NA
35BWW20	Decrease	No Trend
35BWW25	NA	No Trend
LHSMW58	Probably Decreasing	NA

Notes:

MCL - maximum contaminant level

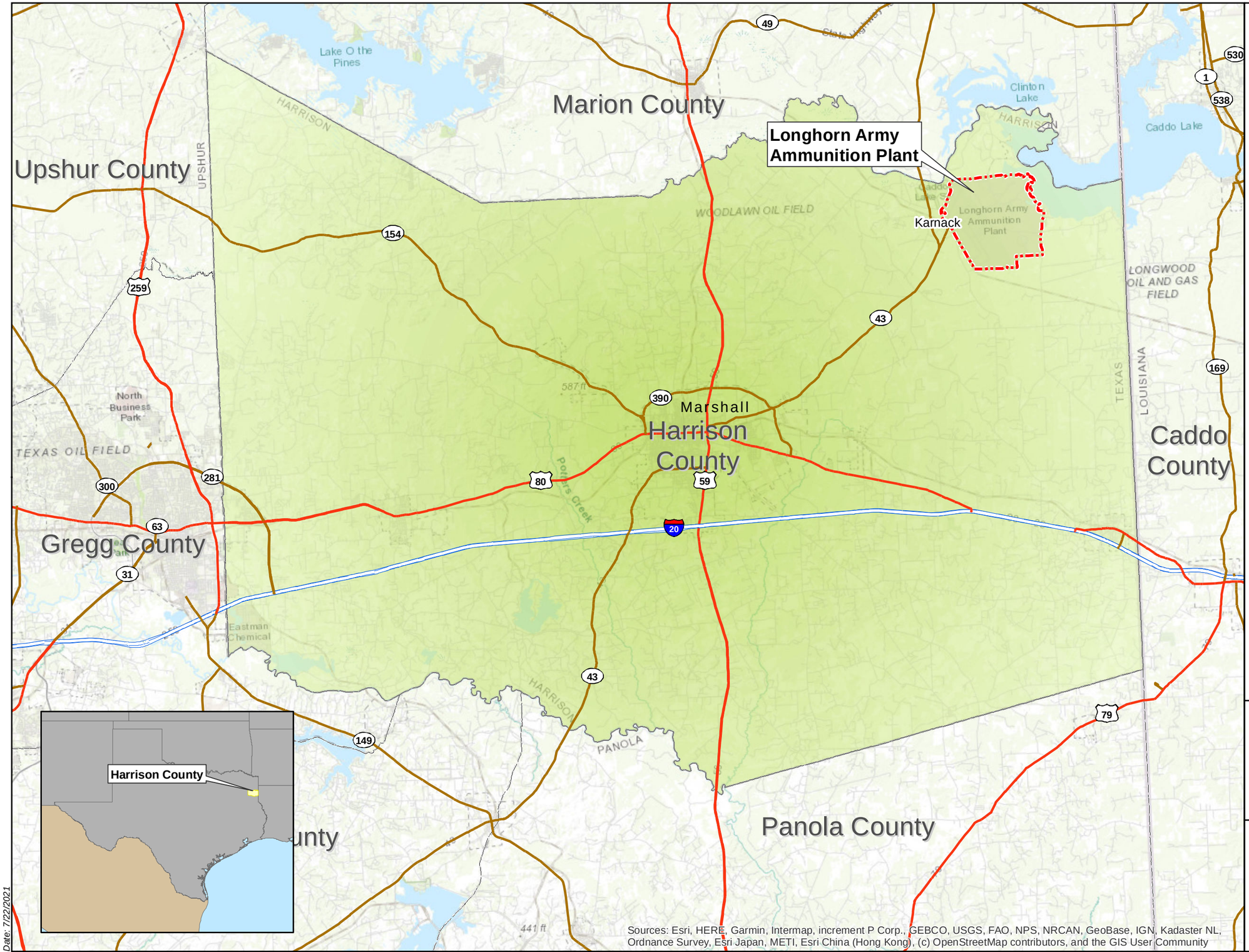
NA - Not analyzed due to concentrations below the MCL.

PCE - tetrachloroethene

RA-O - remedial action operation

TCE - trichloroethene

Figures



Note:
1. RA-O = Remedial Action Operations

N

0 2 4 Miles

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Figure 1-1

LHAAP Location Map
Fourth Annual RA-O Report
LHAAP-35B(37)

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Date: 7/22/2021

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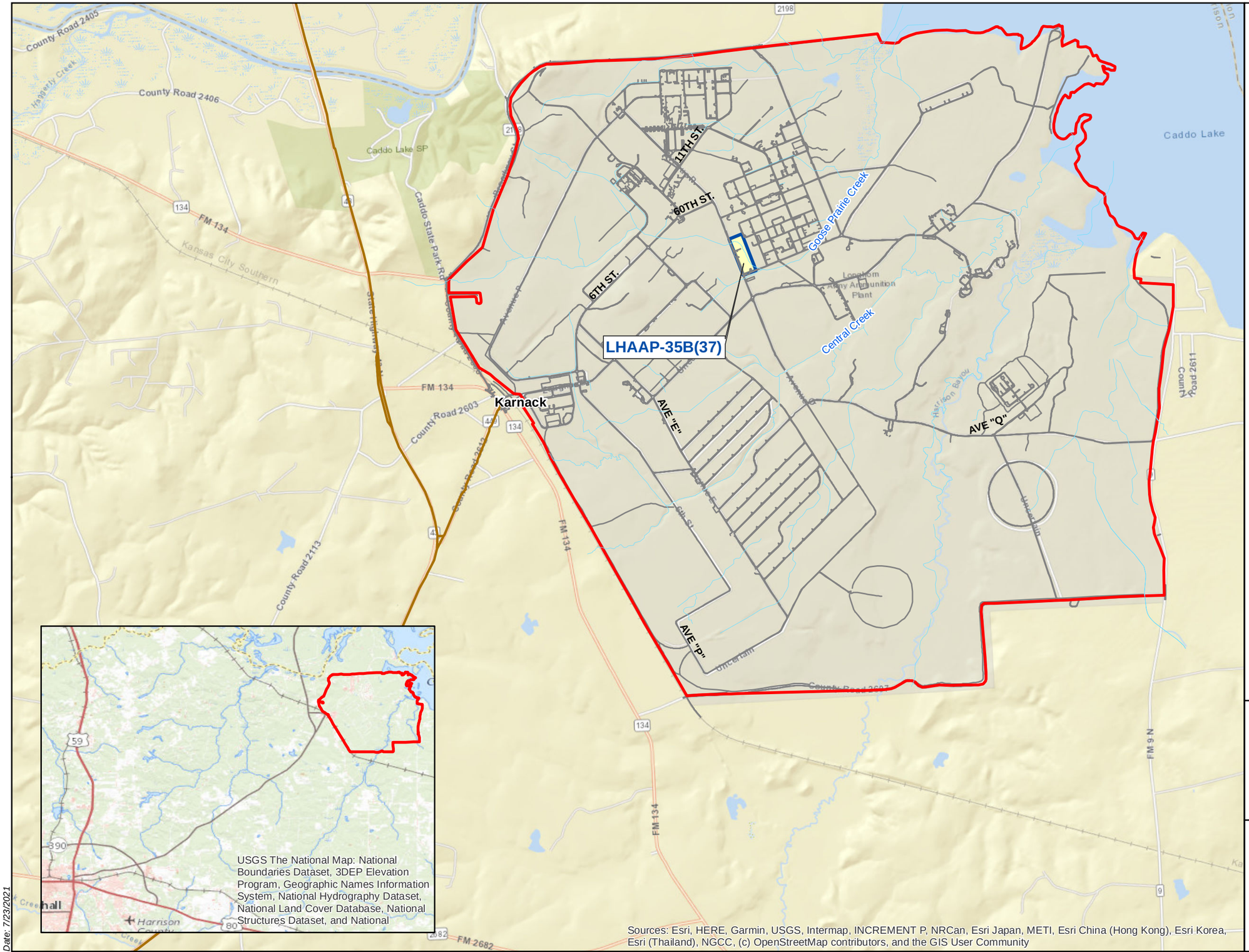

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Figure 1-2

LHAAP Site Vicinity Map
Fourth Annual RA-O Report
LHAAP-35B(37)
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Date: 7/23/2021

Document Path: F:\Projects\Longhorn\LHAAP\Documents\Mxd\LHAAP37\RAO\Year4\LHAAP37_SiteLocationMap.mxd

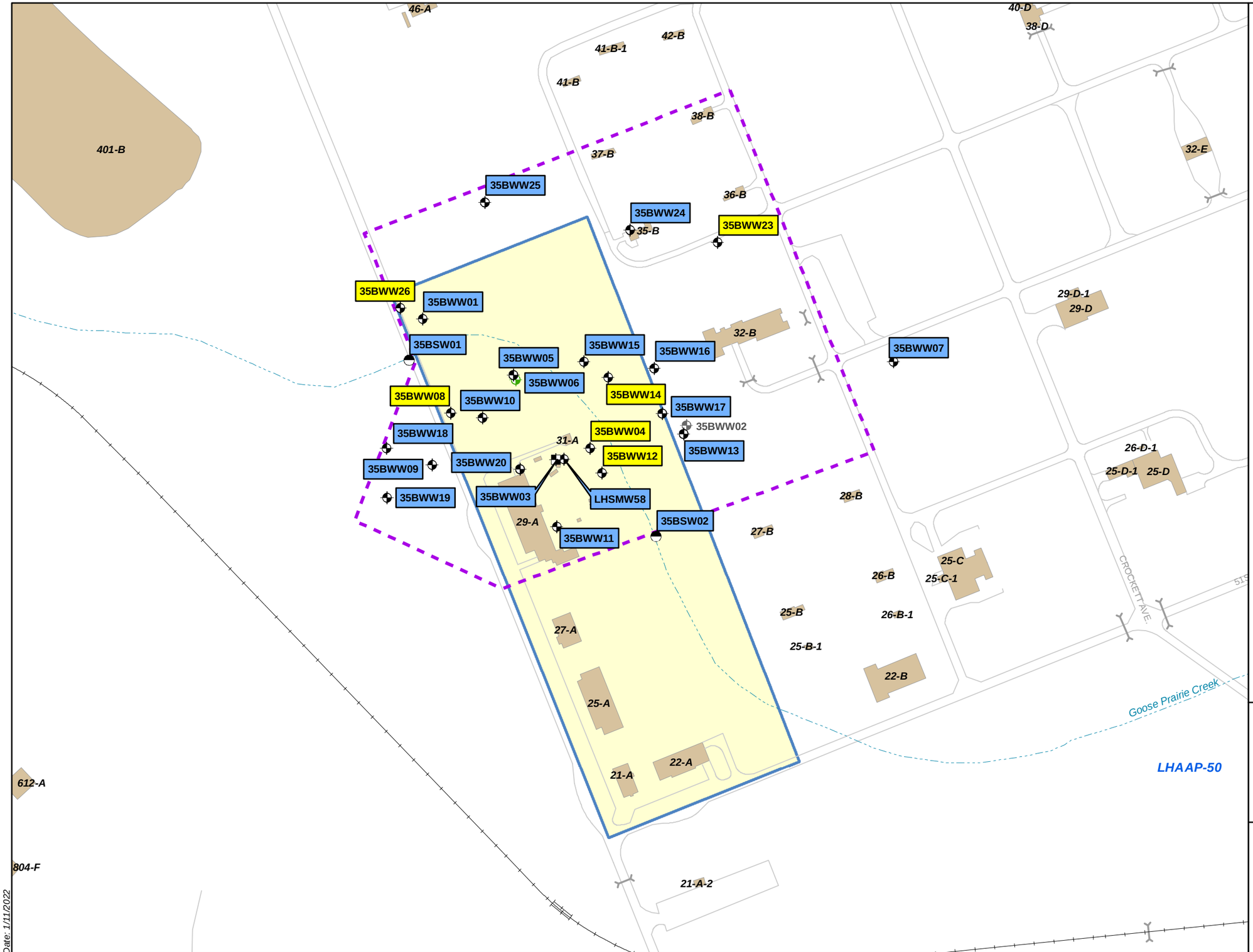

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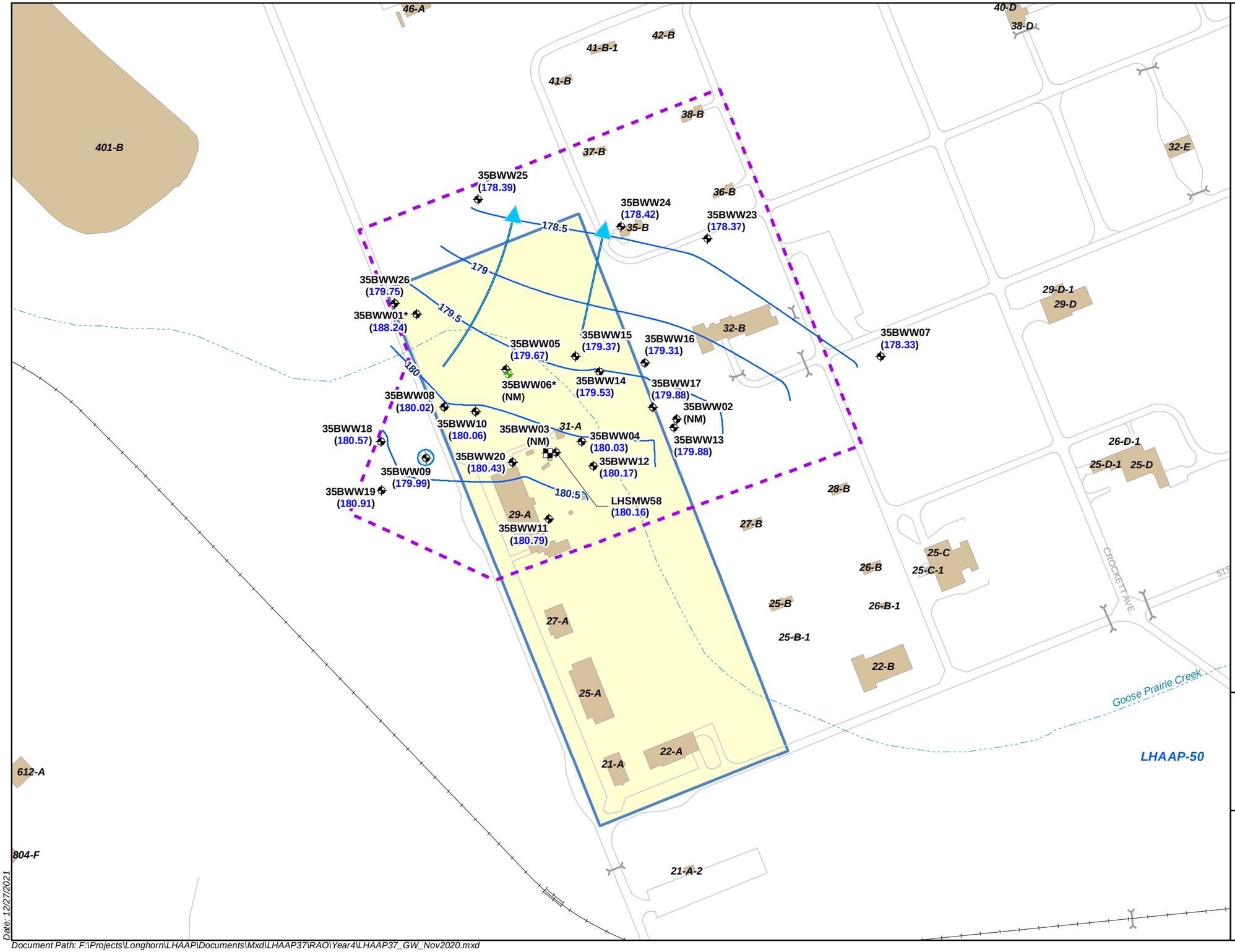
Figure 2-1

Groundwater Monitoring Well Locations
Fourth Annual RA-O Report
LHAAP-35B(37)

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Date: 1/11/2022

Document Path: F:\Projects\Longhorn\LHAAP\Documents\Mxd\LHAAP37\RAO\Year4\LHAAP37_GWMonitoringLocations.mxd



Note:
1. RA-O = Remedial Action Operations
2. * = Well was not used to create potentiometric surface
3. NM = No Measurement
4. Groundwater elevations are feet above mean sea level.

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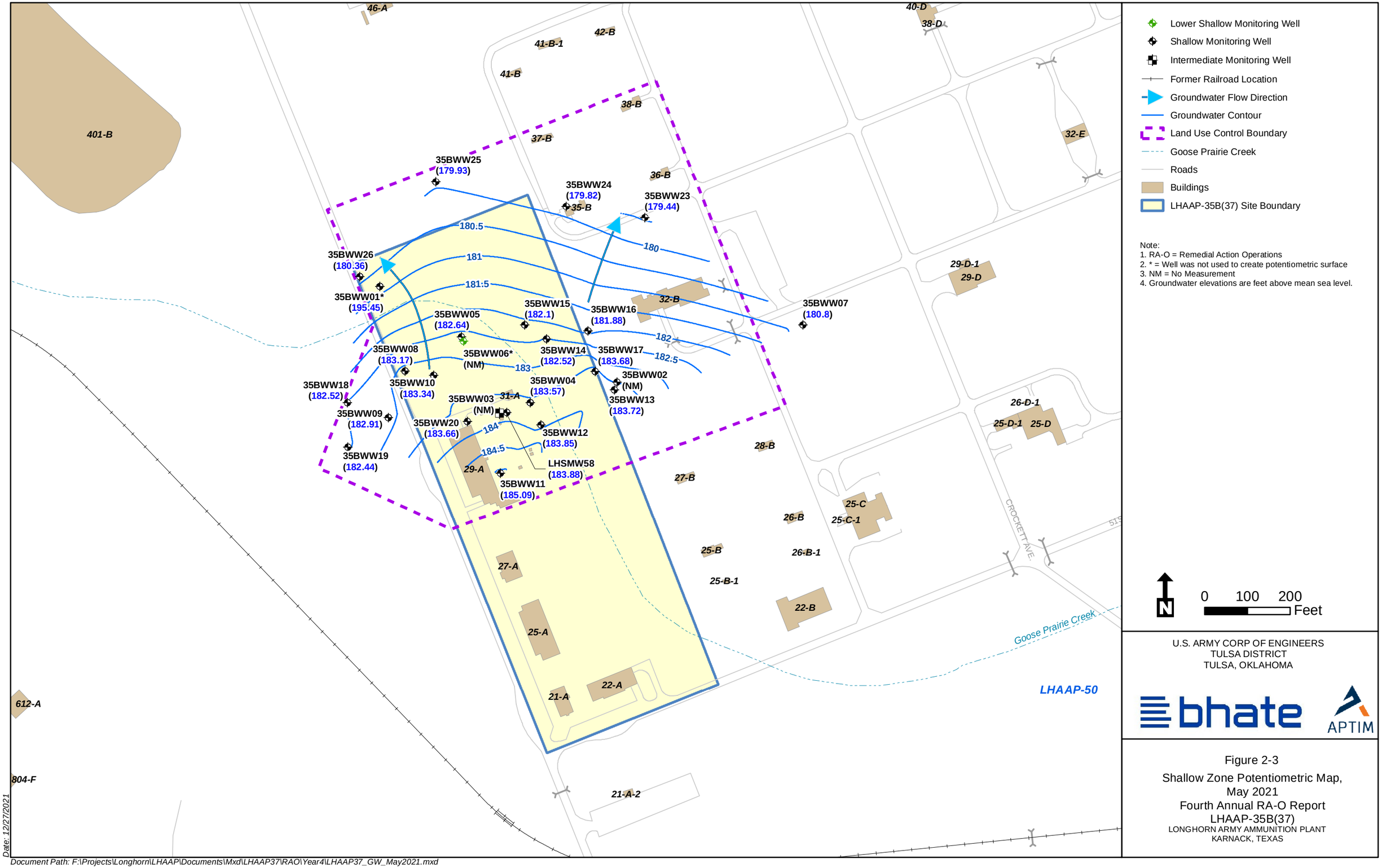
Figure 2-2

Shallow Zone Potentiometric Map,
November 2020
Fourth Annual RA-O Report
LHAAP-35B(37)
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Date: 12/27/2021

Document Path: F:\Projects\Longhorn\LHAAP\Documents\Mxd\LHAAP37\RAO\Year4\LHAAP37_GW_Nov2020.mxd



Note:
1. RA-O = Remedial Action Operations
2. * = Well was not used to create potentiometric surface
3. NM = No Measurement
4. Groundwater elevations are feet above mean sea level.

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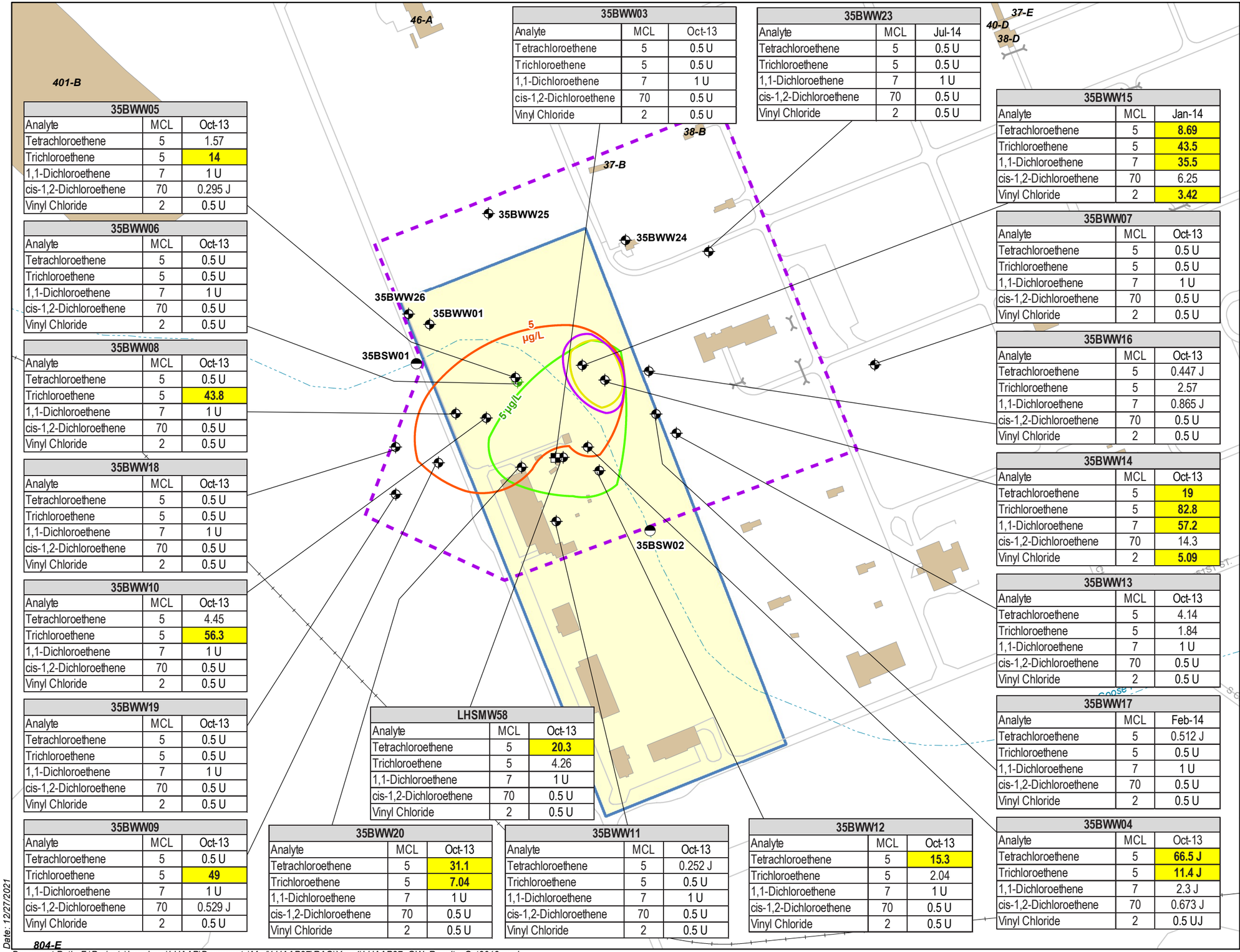
Figure 2-3
Shallow Zone Potentiometric Map,
May 2021
Fourth Annual RA-O Report
LHAAP-35B(37)
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Date: 12/27/2021

Document Path: F:\Projects\Longhorn\LHAAP\Documents\Mxd\LHAAP37\RAO\Year4\LHAAP37_GW_May2021.mxd



35BWW05		
Analyte	MCL	Oct-13
Tetrachloroethene	5	1.57
Trichloroethene	5	**14**
1,1-Dichloroethene	7	1 U
cis-1,2-Dichloroethene	70	0.295 J
Vinyl Chloride	2	0.5 U

35BWW06		
Analyte	MCL	Oct-13
Tetrachloroethene	5	0.5 U
Trichloroethene	5	0.5 U
1,1-Dichloroethene	7	1 U
cis-1,2-Dichloroethene	70	0.5 U
Vinyl Chloride	2	0.5 U

35BWW08		
Analyte	MCL	Oct-13
Tetrachloroethene	5	0.5 U
Trichloroethene	5	**43.8**
1,1-Dichloroethene	7	1 U
cis-1,2-Dichloroethene	70	0.5 U
Vinyl Chloride	2	0.5 U

35BWW18		
Analyte	MCL	Oct-13
Tetrachloroethene	5	0.5 U
Trichloroethene	5	0.5 U
1,1-Dichloroethene	7	1 U
cis-1,2-Dichloroethene	70	0.5 U
Vinyl Chloride	2	0.5 U

35BWW10		
Analyte	MCL	Oct-13
Tetrachloroethene	5	4.45
Trichloroethene	5	**56.3**
1,1-Dichloroethene	7	1 U
cis-1,2-Dichloroethene	70	0.5 U
Vinyl Chloride	2	0.5 U

35BWW19		
Analyte	MCL	Oct-13
Tetrachloroethene	5	0.5 U
Trichloroethene	5	0.5 U
1,1-Dichloroethene	7	1 U
cis-1,2-Dichloroethene	70	0.5 U
Vinyl Chloride	2	0.5 U

35BWW09		
Analyte	MCL	Oct-13
Tetrachloroethene	5	0.5 U
Trichloroethene	5	**49**
1,1-Dichloroethene	7	1 U
cis-1,2-Dichloroethene	70	0.529 J
Vinyl Chloride	2	0.5 U

35BWW03		
Analyte	MCL	Oct-13
Tetrachloroethene	5	0.5 U
Trichloroethene	5	0.5 U
1,1-Dichloroethene	7	1 U
cis-1,2-Dichloroethene	70	0.5 U
Vinyl Chloride	2	0.5 U

35BWW23		
Analyte	MCL	Jul-14
Tetrachloroethene	5	0.5 U
Trichloroethene	5	0.5 U
1,1-Dichloroethene	7	1 U
cis-1,2-Dichloroethene	70	0.5 U
Vinyl Chloride	2	0.5 U

35BWW15		
Analyte	MCL	Jan-14
Tetrachloroethene	5	**8.69**
Trichloroethene	5	**43.5**
1,1-Dichloroethene	7	**35.5**
cis-1,2-Dichloroethene	70	6.25
Vinyl Chloride	2	**3.42**

35BWW07		
Analyte	MCL	Oct-13
Tetrachloroethene	5	0.5 U
Trichloroethene	5	0.5 U
1,1-Dichloroethene	7	1 U
cis-1,2-Dichloroethene	70	0.5 U
Vinyl Chloride	2	0.5 U

35BWW16		
Analyte	MCL	Oct-13
Tetrachloroethene	5	0.447 J
Trichloroethene	5	2.57
1,1-Dichloroethene	7	0.865 J
cis-1,2-Dichloroethene	70	0.5 U
Vinyl Chloride	2	0.5 U

35BWW14		
Analyte	MCL	Oct-13
Tetrachloroethene	5	**19**
Trichloroethene	5	**82.8**
1,1-Dichloroethene	7	**57.2**
cis-1,2-Dichloroethene	70	14.3
Vinyl Chloride	2	**5.09**

35BWW13		
Analyte	MCL	Oct-13
Tetrachloroethene	5	4.14
Trichloroethene	5	1.84
1,1-Dichloroethene	7	1 U
cis-1,2-Dichloroethene	70	0.5 U
Vinyl Chloride	2	0.5 U

35BWW17		
Analyte	MCL	Feb-14
Tetrachloroethene	5	0.512 J
Trichloroethene	5	0.5 U
1,1-Dichloroethene	7	1 U
cis-1,2-Dichloroethene	70	0.5 U
Vinyl Chloride	2	0.5 U

35BWW04		
Analyte	MCL	Oct-13
Tetrachloroethene	5	**66.5 J**
Trichloroethene	5	**11.4 J**
1,1-Dichloroethene	7	2.3 J
cis-1,2-Dichloroethene	70	0.673 J
Vinyl Chloride	2	0.5 UJ

LHSMW58		
Analyte	MCL	Oct-13
Tetrachloroethene	5	**20.3**
Trichloroethene	5	4.26
1,1-Dichloroethene	7	1 U
cis-1,2-Dichloroethene	70	0.5 U
Vinyl Chloride	2	0.5 U

35BWW20		
Analyte	MCL	Oct-13
Tetrachloroethene	5	**31.1**
Trichloroethene	5	**7.04**
1,1-Dichloroethene	7	1 U
cis-1,2-Dichloroethene	70	0.5 U
Vinyl Chloride	2	0.5 U

35BWW11		
Analyte	MCL	Oct-13
Tetrachloroethene	5	0.252 J
Trichloroethene	5	0.5 U
1,1-Dichloroethene	7	1 U
cis-1,2-Dichloroethene	70	0.5 U
Vinyl Chloride	2	0.5 U

35BWW12		
Analyte	MCL	Oct-13
Tetrachloroethene	5	**15.3**
Trichloroethene	5	2.04
1,1-Dichloroethene	7	1 U
cis-1,2-Dichloroethene	70	0.5 U
Vinyl Chloride	2	0.5 U

- Shallow Monitoring Well
- Lower Shallow Monitoring Well
- Intermediate Monitoring Well
- Surface Water Location
- Tetrachloroethene Contour
- Trichloroethene Contour
- 1,1-Dichloroethene Contour
- Vinyl Chloride Contour
- Former Railroad Location
- Land Use Control Boundary
- Goose Prairie Creek
- Roads
- Buildings
- LHAAP-35B(37) Site Boundary

Note:
1. RA-O = Remedial Action Operations
2. MCL = Maximum Contaminant Level
3. J = estimated level
4. U = below detection limit

N

0 100 200 Feet

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Figure 2-4
Groundwater Results
Baseline 2013-2014
Fourth Annual RA-O Report
LHAAP-35B(37)
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Date: 12/27/2021

804-E

Document Path: F:\Projects\Longhorn\LHAAP\Documents\Mxd\LHAAP37\RAO\Year4\LHAAP37_GW_Results_Oct2013.mxd

35BWW26		
Analyte	MCL	11/10/2020
Tetrachloroethene	5	0.5 U
Trichloroethene	5	0.5 U
1,1-Dichloroethene	7	0.5 U
cis-1,2-Dichloroethene	70	0.5 U
Vinyl chloride	2	0.5 U

35BWW01		
Analyte	MCL	11/9/2020
Tetrachloroethene	5	0.5 U
Trichloroethene	5	0.5 U
1,1-Dichloroethene	7	0.5 U
cis-1,2-Dichloroethene	70	0.5 U
Vinyl chloride	2	0.5 U

35BWW25		
Analyte	MCL	11/10/2020
Tetrachloroethene	5	0.5 U
Trichloroethene	5	**10**
1,1-Dichloroethene	7	0.5 U
cis-1,2-Dichloroethene	70	0.5 U
Vinyl chloride	2	0.5 U

35BWW24		
Analyte	MCL	11/10/2020
Tetrachloroethene	5	0.5 U
Trichloroethene	5	1.7
1,1-Dichloroethene	7	0.5 U
cis-1,2-Dichloroethene	70	0.5 U
Vinyl chloride	2	0.5 U

35BWW23		
Analyte	MCL	11/10/2020
Tetrachloroethene	5	0.5 U
Trichloroethene	5	0.5 U
1,1-Dichloroethene	7	0.5 U
cis-1,2-Dichloroethene	70	0.5 U
Vinyl chloride	2	0.5 U

35BWW15		
Analyte	MCL	11/10/2020
Tetrachloroethene	5	**11**
Trichloroethene	5	**5.4**
1,1-Dichloroethene	7	0.74 J
cis-1,2-Dichloroethene	70	0.5 U
Vinyl chloride	2	0.5 U

35BWW07		
Analyte	MCL	11/11/2020
Tetrachloroethene	5	0.5 U
Trichloroethene	5	0.5 U
1,1-Dichloroethene	7	0.5 U
cis-1,2-Dichloroethene	70	0.5 U
Vinyl chloride	2	0.5 U

35BWW16		
Analyte	MCL	11/11/2020
Tetrachloroethene	5	4.4
Trichloroethene	5	1.8
1,1-Dichloroethene	7	0.5 U
cis-1,2-Dichloroethene	70	0.5 U
Vinyl chloride	2	0.5 U

35BWW14		
Analyte	MCL	11/10/2020
Tetrachloroethene	5	**23**
Trichloroethene	5	**7.7**
1,1-Dichloroethene	7	2.1
cis-1,2-Dichloroethene	70	0.64 J
Vinyl chloride	2	0.5 U

35BWW13		
Analyte	MCL	11/11/2020
Tetrachloroethene	5	1 U
Trichloroethene	5	0.5 U
1,1-Dichloroethene	7	0.5 U
cis-1,2-Dichloroethene	70	0.5 U
Vinyl chloride	2	0.5 U

35BWW17		
Analyte	MCL	11/11/2020
Tetrachloroethene	5	1 U
Trichloroethene	5	0.5 U
1,1-Dichloroethene	7	0.5 U
cis-1,2-Dichloroethene	70	0.5 U
Vinyl chloride	2	0.5 U

35BWW04		
Analyte	MCL	11/10/2020
Tetrachloroethene	5	**5.2**
Trichloroethene	5	0.72 J
1,1-Dichloroethene	7	0.5 U
cis-1,2-Dichloroethene	70	0.5 U
Vinyl chloride	2	0.5 U

35BWW05		
Analyte	MCL	11/9/2020
Tetrachloroethene	5	2.1
Trichloroethene	5	**5.5**
1,1-Dichloroethene	7	0.5 U
cis-1,2-Dichloroethene	70	0.5 U
Vinyl chloride	2	0.5 U

35BWW08		
Analyte	MCL	11/11/2020
Tetrachloroethene	5	1 U
Trichloroethene	5	0.5 U
1,1-Dichloroethene	7	0.5 U
cis-1,2-Dichloroethene	70	0.5 U
Vinyl chloride	2	0.5 U

35BWW18		
Analyte	MCL	11/9/2020
Tetrachloroethene	5	0.5 U
Trichloroethene	5	0.5 U
1,1-Dichloroethene	7	0.5 U
cis-1,2-Dichloroethene	70	0.5 U
Vinyl chloride	2	0.5 U

35BWW10		
Analyte	MCL	11/9/2020
Tetrachloroethene	5	0.5 U
Trichloroethene	5	0.5 U
1,1-Dichloroethene	7	0.5 U
cis-1,2-Dichloroethene	70	0.5 U
Vinyl chloride	2	0.5 U

35BWW19		
Analyte	MCL	11/9/2020
Tetrachloroethene	5	0.5 U
Trichloroethene	5	0.5 U
1,1-Dichloroethene	7	0.5 U
cis-1,2-Dichloroethene	70	0.5 U
Vinyl chloride	2	0.5 U

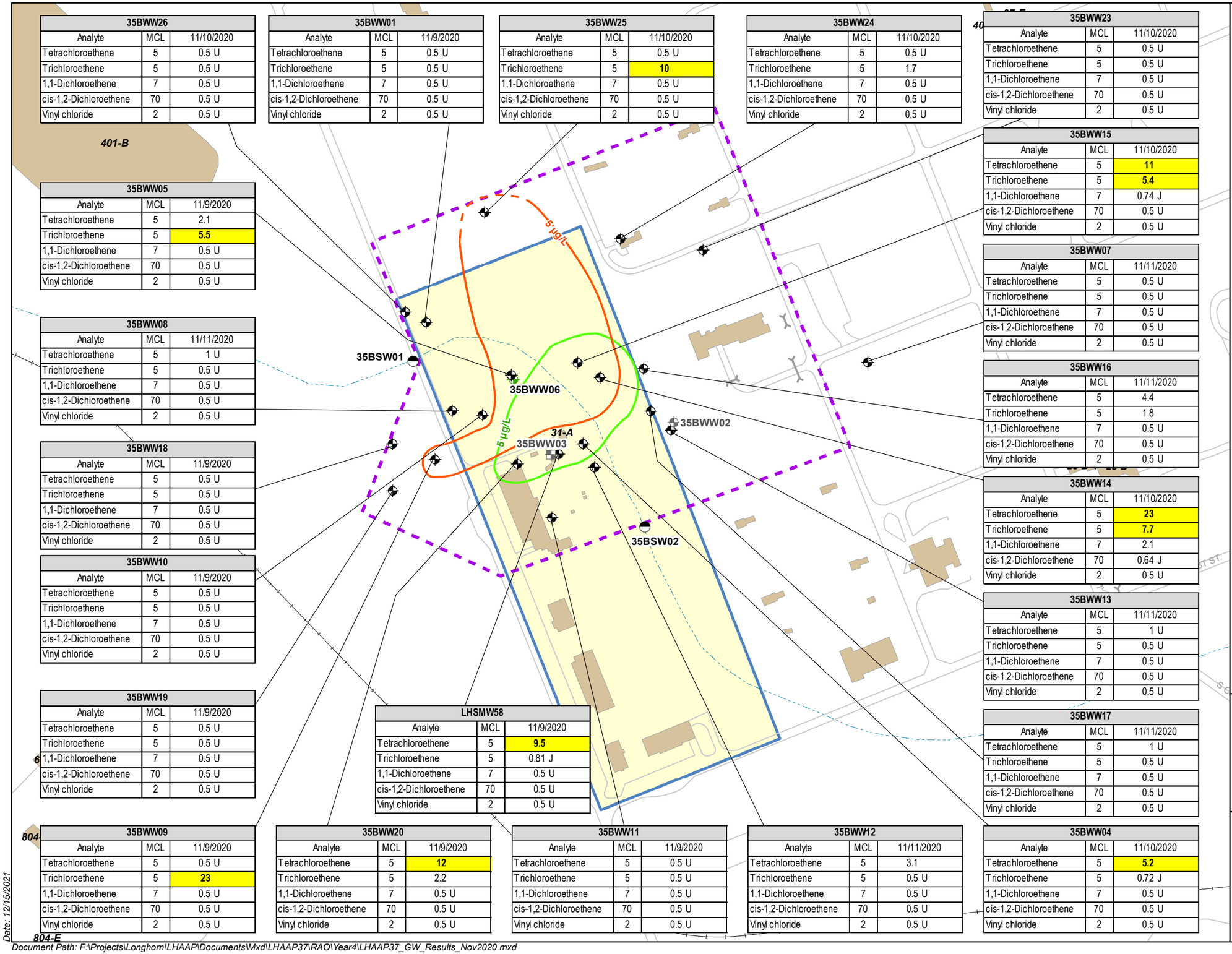
LHSMW58		
Analyte	MCL	11/9/2020
Tetrachloroethene	5	**9.5**
Trichloroethene	5	0.81 J
1,1-Dichloroethene	7	0.5 U
cis-1,2-Dichloroethene	70	0.5 U
Vinyl chloride	2	0.5 U

35BWW09		
Analyte	MCL	11/9/2020
Tetrachloroethene	5	0.5 U
Trichloroethene	5	**23**
1,1-Dichloroethene	7	0.5 U
cis-1,2-Dichloroethene	70	0.5 U
Vinyl chloride	2	0.5 U

35BWW20		
Analyte	MCL	11/9/2020
Tetrachloroethene	5	**12**
Trichloroethene	5	2.2
1,1-Dichloroethene	7	0.5 U
cis-1,2-Dichloroethene	70	0.5 U
Vinyl chloride	2	0.5 U

35BWW11		
Analyte	MCL	11/9/2020
Tetrachloroethene	5	0.5 U
Trichloroethene	5	0.5 U
1,1-Dichloroethene	7	0.5 U
cis-1,2-Dichloroethene	70	0.5 U
Vinyl chloride	2	0.5 U

35BWW12		
Analyte	MCL	11/11/2020
Tetrachloroethene	5	3.1
Trichloroethene	5	0.5 U
1,1-Dichloroethene	7	0.5 U
cis-1,2-Dichloroethene	70	0.5 U
Vinyl chloride	2	0.5 U



- Shallow Monitoring Well
- Shallow Monitoring Well - Not Sampled
- Lower Shallow Monitoring Well - Not Sampled
- Intermediate Monitoring Well - Not Sampled
- Surface Water Location
- Former Railroad Location
- Tetrachloroethene Contour
- Trichloroethene Contour (*Dashed where inferred*)
- Land Use Control Boundary
- Goose Prairie Creek
- Roads
- Buildings
- LHAAP-35B(37) Site Boundary

Note:
1. RA-O = Remedial Action Operations
2. MCL = Maximum Contaminant Level
3. J = estimated level
4. U = below detection limit

N

0 100 200 Feet

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Figure 2-5
Groundwater Results
November 2020 Y4SA1
Fourth Annual RA-O Report
LHAAP-35B(37)
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Date: 12/15/2021

Document Path: F:\Projects\Longhorn\LHAAP\Documents\Mxd\LHAAP37\RAO\Year4\LHAAP37_GW_Results_Nov2020.mxd

35BWW26		
Analyte	MCL	5/13/2021
Tetrachloroethene	5	1 U
Trichloroethene	5	0.5 U
1,1-Dichloroethene	7	0.5 U
cis-1,2-Dichloroethene	70	0.5 U
Vinyl chloride	2	0.5 U

35BWW01		
Analyte	MCL	5/13/2021
Tetrachloroethene	5	1 U
Trichloroethene	5	0.5 U
1,1-Dichloroethene	7	0.5 U
cis-1,2-Dichloroethene	70	0.5 U
Vinyl chloride	2	0.5 U

35BWW25		
Analyte	MCL	5/17/2021
Tetrachloroethene	5	1 U
Trichloroethene	5	**8.5**
1,1-Dichloroethene	7	0.5 U
cis-1,2-Dichloroethene	70	0.5 U
Vinyl chloride	2	0.5 U

35BWW24		
Analyte	MCL	5/17/2021
Tetrachloroethene	5	1 U
Trichloroethene	5	2.4
1,1-Dichloroethene	7	0.5 U
cis-1,2-Dichloroethene	70	0.5 U
Vinyl chloride	2	0.5 U

35BWW23		
Analyte	MCL	5/18/2021
Tetrachloroethene	5	1 U
Trichloroethene	5	0.5 U
1,1-Dichloroethene	7	0.5 U
cis-1,2-Dichloroethene	70	0.5 U
Vinyl chloride	2	0.5 U

35BWW05		
Analyte	MCL	5/13/2021
Tetrachloroethene	5	2.5
Trichloroethene	5	**6.3**
1,1-Dichloroethene	7	0.5 U
cis-1,2-Dichloroethene	70	0.5 U
Vinyl chloride	2	0.5 U

35BWW15		
Analyte	MCL	5/18/2021
Tetrachloroethene	5	**14**
Trichloroethene	5	**6.2**
1,1-Dichloroethene	7	0.63 J
cis-1,2-Dichloroethene	70	0.5 U
Vinyl chloride	2	0.5 U

35BWW07		
Analyte	MCL	5/17/2021
Tetrachloroethene	5	1 U
Trichloroethene	5	0.5 U
1,1-Dichloroethene	7	0.5 U
cis-1,2-Dichloroethene	70	0.5 U
Vinyl chloride	2	0.5 U

35BWW08		
Analyte	MCL	5/13/2021
Tetrachloroethene	5	1 U
Trichloroethene	5	0.5 U
1,1-Dichloroethene	7	0.5 U
cis-1,2-Dichloroethene	70	0.5 U
Vinyl chloride	2	0.5 U

35BWW16		
Analyte	MCL	5/18/2021
Tetrachloroethene	5	**6**
Trichloroethene	5	2.1
1,1-Dichloroethene	7	0.5 U
cis-1,2-Dichloroethene	70	0.5 U
Vinyl chloride	2	0.5 U

35BWW18		
Analyte	MCL	5/18/2021
Tetrachloroethene	5	1 U
Trichloroethene	5	0.5 U
1,1-Dichloroethene	7	0.5 U
cis-1,2-Dichloroethene	70	0.5 U
Vinyl chloride	2	0.5 U

35BWW14		
Analyte	MCL	5/18/2021
Tetrachloroethene	5	**27**
Trichloroethene	5	**6.9**
1,1-Dichloroethene	7	1.8
cis-1,2-Dichloroethene	70	0.5 U
Vinyl chloride	2	0.5 U

35BWW10		
Analyte	MCL	5/13/2021
Tetrachloroethene	5	1 U
Trichloroethene	5	0.5 U
1,1-Dichloroethene	7	0.5 U
cis-1,2-Dichloroethene	70	0.5 U
Vinyl chloride	2	0.5 U

35BWW13		
Analyte	MCL	5/17/2021
Tetrachloroethene	5	1 U
Trichloroethene	5	0.5 U
1,1-Dichloroethene	7	0.5 U
cis-1,2-Dichloroethene	70	0.5 U
Vinyl chloride	2	0.5 U

35BWW19		
Analyte	MCL	5/18/2021
Tetrachloroethene	5	1 U
Trichloroethene	5	0.5 U
1,1-Dichloroethene	7	0.5 U
cis-1,2-Dichloroethene	70	0.5 U
Vinyl chloride	2	0.5 U

35BWW17		
Analyte	MCL	5/18/2021
Tetrachloroethene	5	1 U
Trichloroethene	5	0.5 U
1,1-Dichloroethene	7	0.5 U
cis-1,2-Dichloroethene	70	0.5 U
Vinyl chloride	2	0.5 U

LHSMW58		
Analyte	MCL	5/13/2021
Tetrachloroethene	5	**19**
Trichloroethene	5	1.1
1,1-Dichloroethene	7	0.5 U
cis-1,2-Dichloroethene	70	0.5 U
Vinyl chloride	2	0.5 U

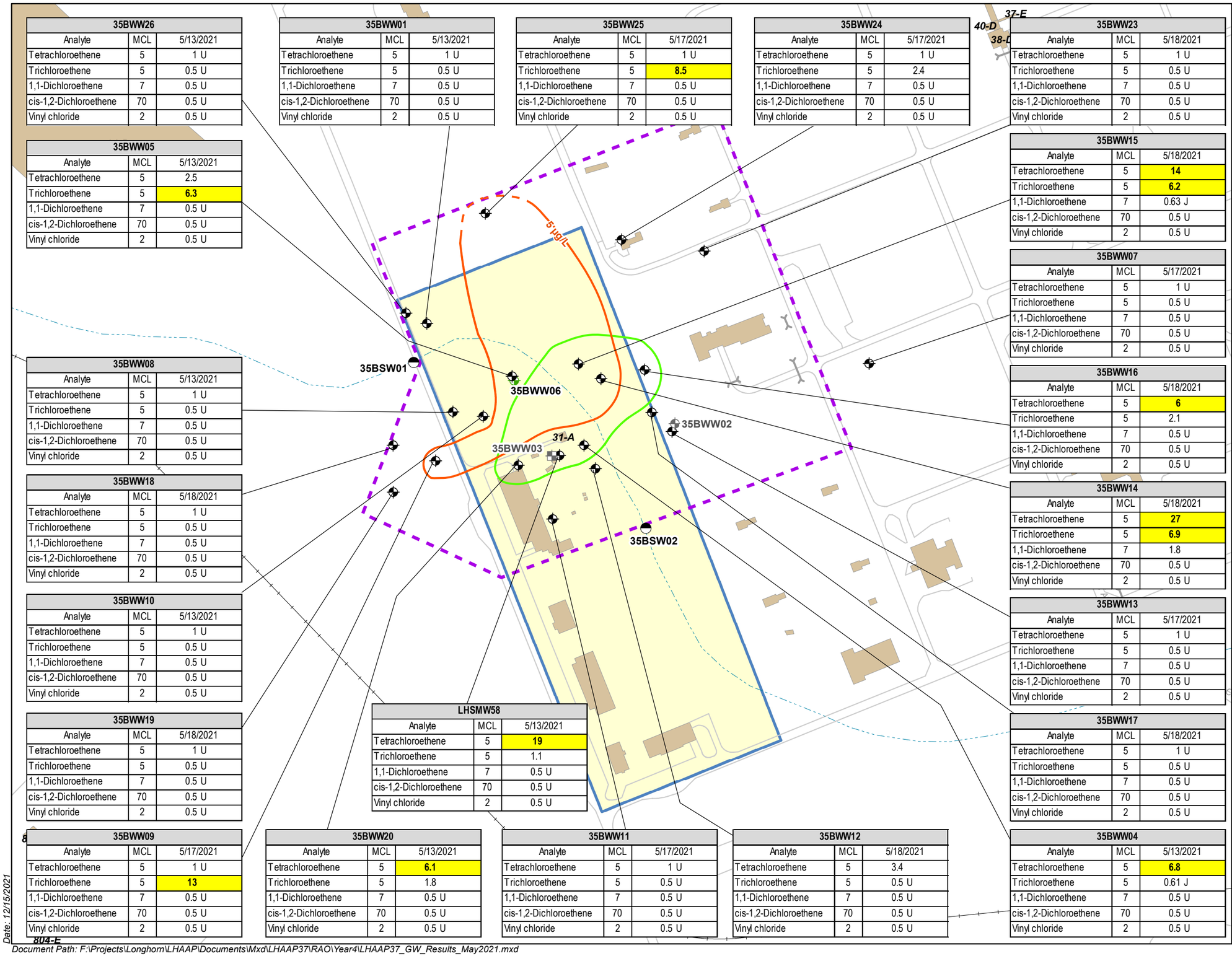
35BWW09		
Analyte	MCL	5/17/2021
Tetrachloroethene	5	1 U
Trichloroethene	5	**13**
1,1-Dichloroethene	7	0.5 U
cis-1,2-Dichloroethene	70	0.5 U
Vinyl chloride	2	0.5 U

35BWW20		
Analyte	MCL	5/13/2021
Tetrachloroethene	5	**6.1**
Trichloroethene	5	1.8
1,1-Dichloroethene	7	0.5 U
cis-1,2-Dichloroethene	70	0.5 U
Vinyl chloride	2	0.5 U

35BWW11		
Analyte	MCL	5/17/2021
Tetrachloroethene	5	1 U
Trichloroethene	5	0.5 U
1,1-Dichloroethene	7	0.5 U
cis-1,2-Dichloroethene	70	0.5 U
Vinyl chloride	2	0.5 U

35BWW12		
Analyte	MCL	5/18/2021
Tetrachloroethene	5	3.4
Trichloroethene	5	0.5 U
1,1-Dichloroethene	7	0.5 U
cis-1,2-Dichloroethene	70	0.5 U
Vinyl chloride	2	0.5 U

35BWW04		
Analyte	MCL	5/13/2021
Tetrachloroethene	5	**6.8**
Trichloroethene	5	0.61 J
1,1-Dichloroethene	7	0.5 U
cis-1,2-Dichloroethene	70	0.5 U
Vinyl chloride	2	0.5 U



- Shallow Monitoring Well
- Shallow Monitoring Well - Not Sampled
- Lower Shallow Monitoring Well - Not Sampled
- Intermediate Monitoring Well - Not Sampled
- Surface Water Location
- Tetrachloroethene Contour
- Trichloroethene Contour (*Dashed where inferred*)
- Former Railroad Location
- Land Use Control Boundary
- Goose Prairie Creek
- Roads
- Buildings
- LHAAP-35B(37) Site Boundary

Note:
1. RA-O = Remedial Action Operations
2. MCL = Maximum Contaminant Level
3. J = estimated level
4. U = below detection limit

N

0 100 200 Feet

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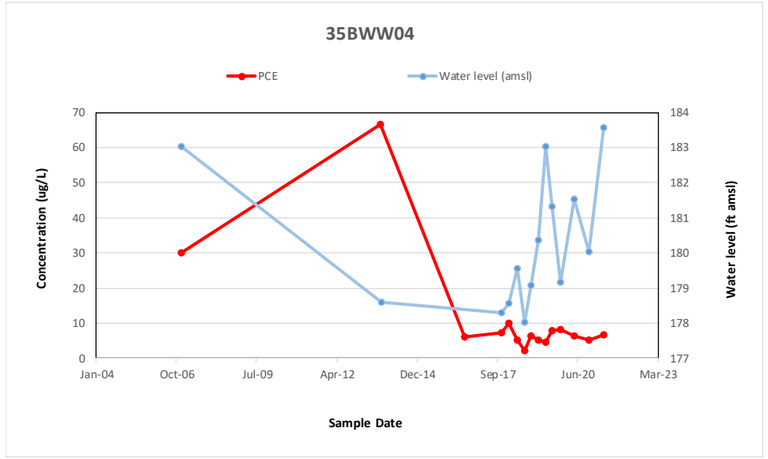
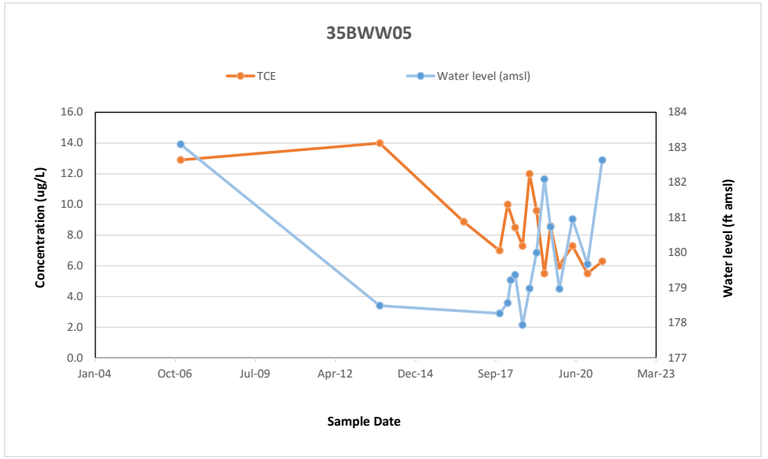
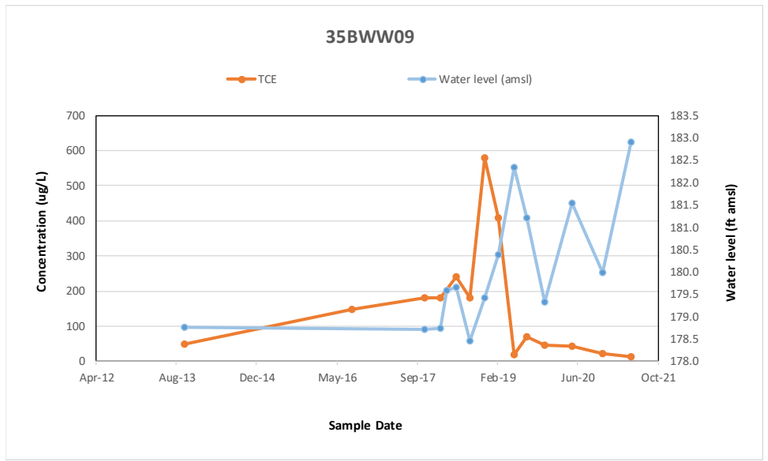
Figure 2-6
Groundwater Results
May 2021 Y4SA2
Fourth Annual RA-O Report
LHAAP-35B(37)
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

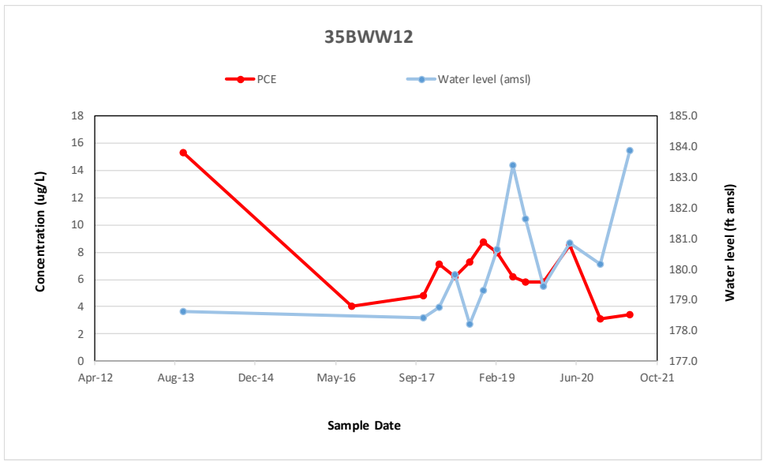
Date: 12/15/2021

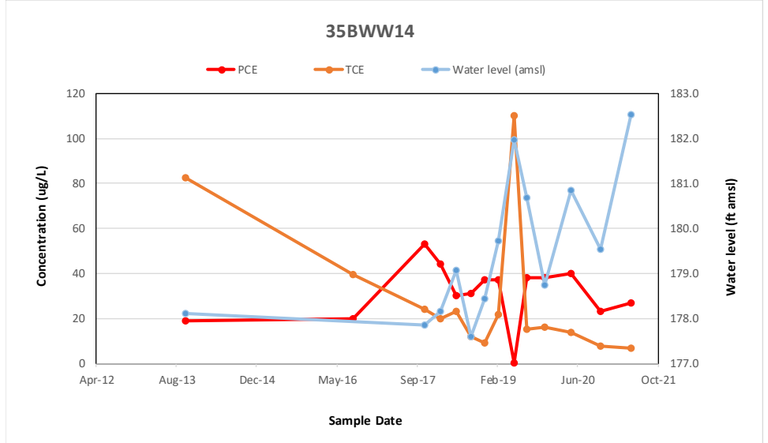
Document Path: F:\Projects\Longhorn\LHAAP\Documents\Mxd\LHAAP37\RAO\Year4\LHAAP37_GW_Results_May2021.mxd

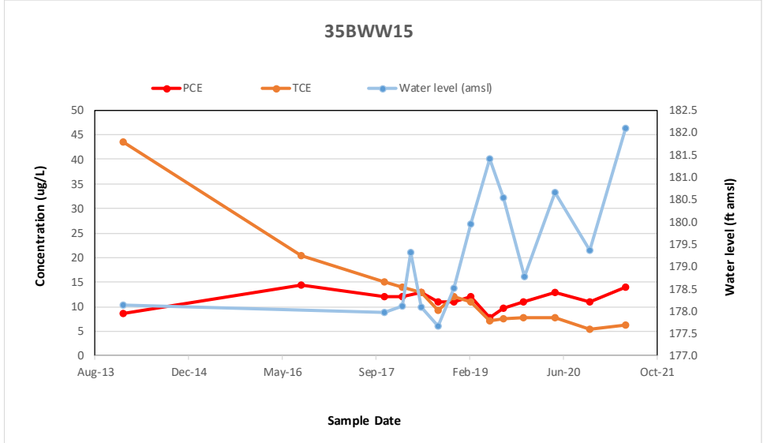












Cleanup Levels:
Tetrachloroethene = 5 µg/L
Trichloroethene = 5 µg/L

Notes:
1. RA-O = Remedial Action Operations
2. PCE = Tetrachloroethene
3. TCE = Trichloroethene

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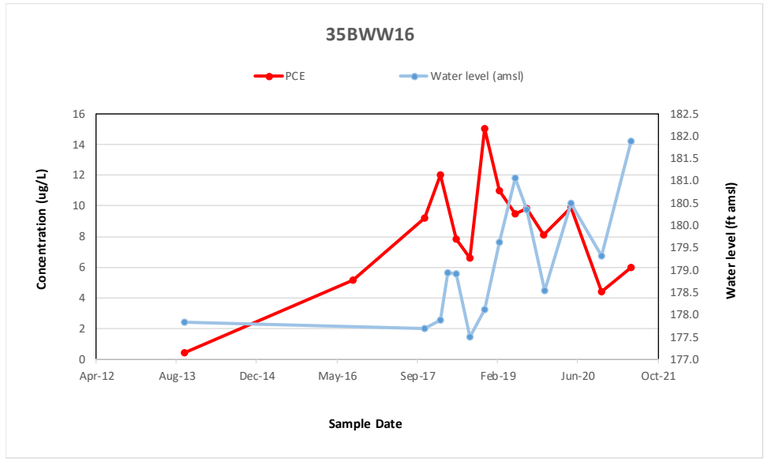
Figure 2-7a

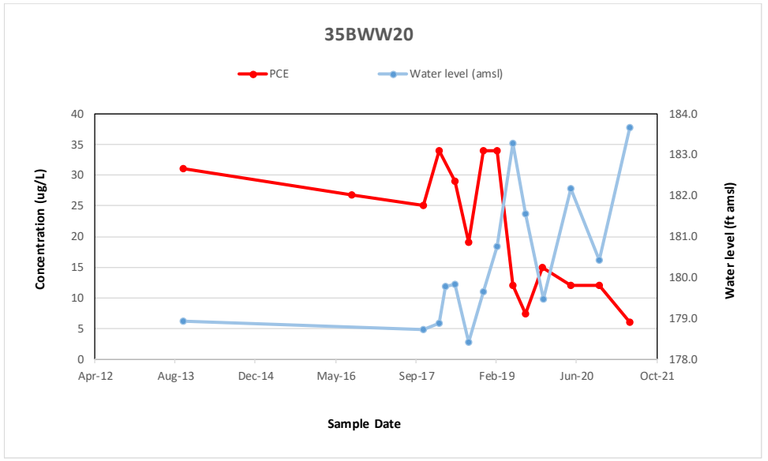
COC Concentrations
Fourth Annual RA-O Report
LHAAP-35B(37)

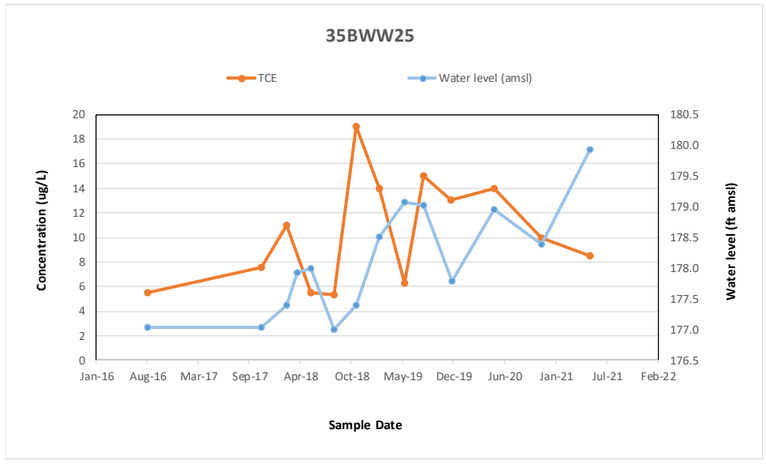
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

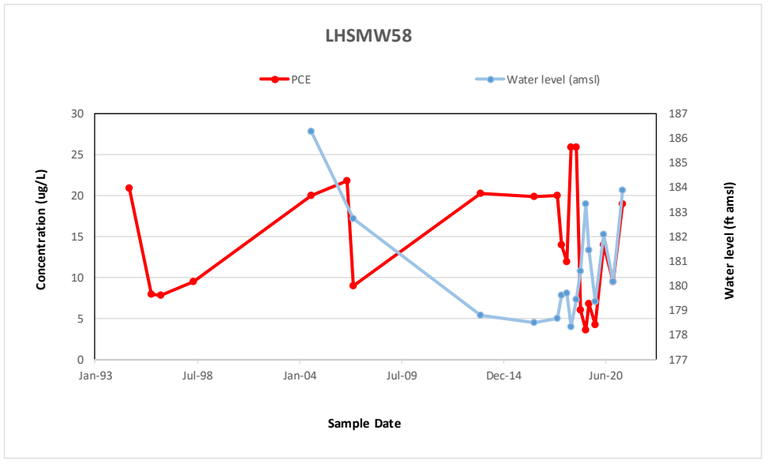
Date: 12/15/2021

Document Path: F:\Projects\Longhorn\LHAAP\Documents\Mxd\LHAAP37\RAO\Year4\LHAAP37_COC_Concentrations.mxd









Cleanup Levels:
Tetrachloroethene = 5 µg/L
Trichloroethene = 5 µg/L

Notes:
1. RA-O = Remedial Action Operations
2. PCE = Tetrachloroethene
3. TCE = Trichloroethene
4. Groundwater elevations at LHSMW58 were not available for all sampling events prior to 2013.

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Figure 2-7b

COC Concentrations
Fourth Annual RA-O Report
LHAAP-35B(37)

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Date: 7/26/2021

Document Path: F:\Projects\Longhorn\LHAAP\Documents\Mxd\LHAAP37\RAO\Year4\LHAAP37_COC_Concentrations_2.mxd

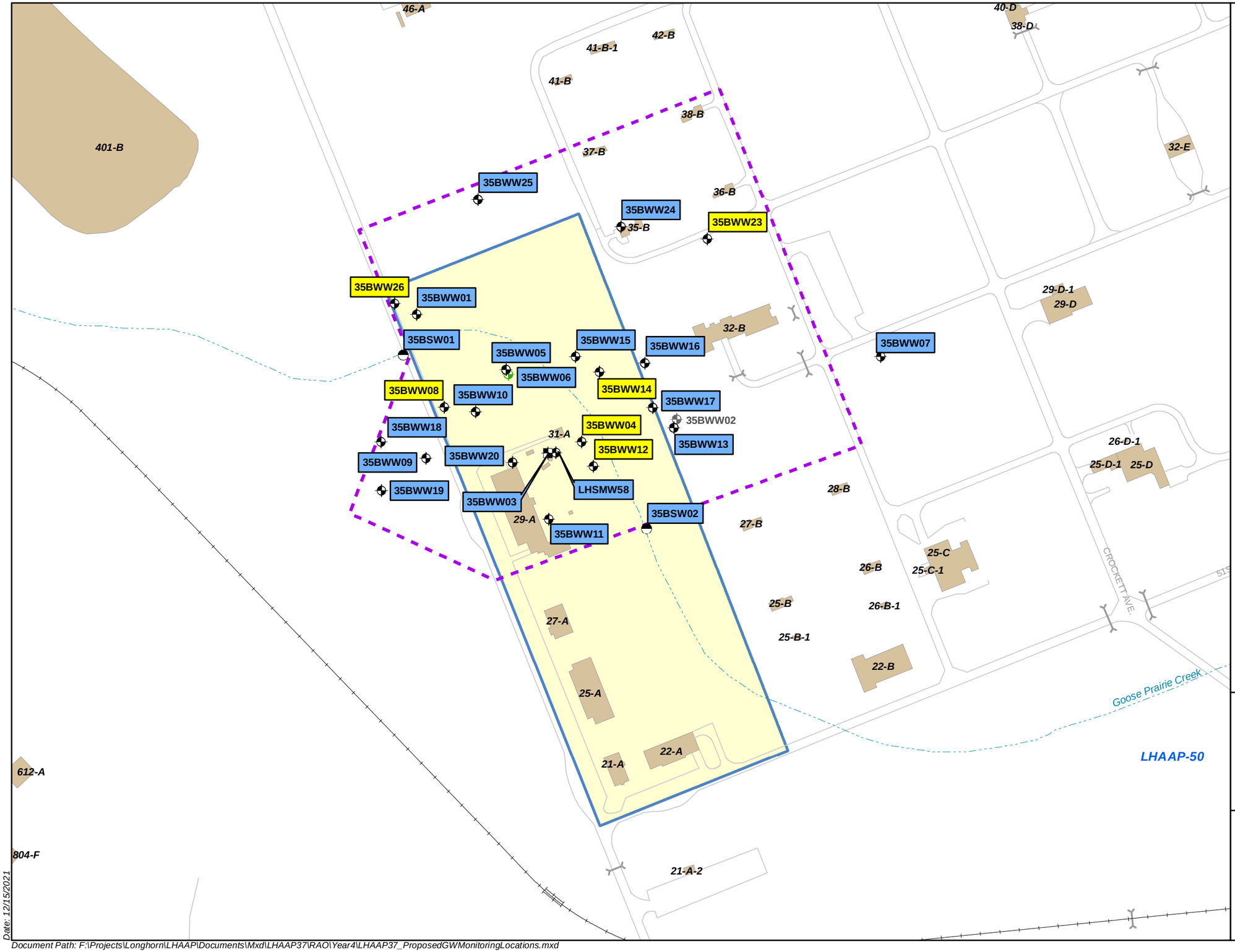

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Figure 2-8

Year 5 Sampling Locations
Fourth Annual RA-O Report
LHAAP-35B(37)

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Date: 12/15/2021

Document Path: F:\Projects\Longhorn\LHAAP\Documents\Mxd\LHAAP37\RAO\Year4\LHAAP37_ProposedGWMonitoringLocations.mxd

Appendix A

Annual Land Use Control Compliance Certification and Documentation

Annual Land Use Control Compliance Certification Documentation

In accordance with the Remedial Action Work Plan dated June 2013 for LHAAP-35B (37) a certification of site was conducted by _____ [indicate transferee] on 12/29/20.

A summary of land use control mechanism is as follows:

Groundwater restriction – restriction of the use of groundwater to environmental monitoring and testing until cleanup levels are met. A restriction against residential use of groundwater will remain in effect until the levels of the COCs in groundwater and soil allow unrestricted use and unlimited exposure (UUUE).

[Indicate whether groundwater restrictions are still required at LHAAP-35B (37)]

A summary of compliance with land use and restriction covenants is as follows:

No use of groundwater, installation of new groundwater wells, or tampering with existing wells at LHAAP-35B (37).

I, the undersigned, do document that the certification was performed as indicated above, and that the above information is true and correct to the best of my knowledge, information, and belief. I also certify that the non-residential use assumption that forms the basis of the remedy remains the same.

Date: December 29, 2020

Name/Title: Scott Beesinger Senior FieldTech

Signature: Scott Beesinger

Annual compliance certification forms shall be completed no later than March 1 of each year for the previous calendar year.

Appendix B

Groundwater Sampling Forms

(Note: The sample collection logs (SCLs) for the Year 4 RA-O sampling events have been revised to correct the screen interval and units. Where required, the SCLs have been corrected by crossing out and entering the correct information.)

01072645

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**
Project No: **501032**

Location ID: **35BWW01**
Sampler(s): Scott Baggenger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 35BWW01-201109 **DATE/TIME:** 11/9/20 0645 **Pump Inlet Depth:** 16.11

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing
Purging Method/Equipment: Low flow/Bladder Pump

Casing ID (in.): 4"
Purge Start Date/Time: 11/9/20 0655

Depth to Water - Initial (DTWi) (ft) 14.18
Purge End Date/Time: 11/9/20 0725

Depth to Well Bottom (ft) 20.95
Discharge Tube Length: NA
PID Reading: NA

Screen Interval (ft): 11.11 - 21.11
Discharge Tube Diameter: 1/4"
Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 16.11
Pump Start Time: 0655

Ferrous Iron (Required Y or (N)) _____ mg/L

2ND DEPTH TO WATER - 14.18

APTIM

Sample Collection Log

Location ID: 35BWW01				Sample No: 35BWW01-201109						
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/9/20	0700	100	.5	14.25	0.131	20.57	5.00	14.1	243	1.01
	0705	100	1.0	14.31	0.079	20.49	4.68	12.5	250	0.72
	0710	100	1.5	14.35	0.076	20.45	4.41	12.1	265	0.58
	0715	100	2.0	14.38	0.076	20.41	4.40	11.8	266	0.57
	0720	100	2.5	14.41	0.076	20.37	4.39	11.4	266	0.56
	0725	100	3.0	14.43	0.076	20.33	4.39	11.2	267	0.55

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **35BWW04**

Sampler(s): Scott Beesinger

FIELD CONDITIONS

Clear

SAMPLING INFORMATION

Sample No: 35BWW04-20111D **DATE/TIME:** 11/10/20 0731 **Pump Inlet Depth:** 27.85

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample **Assoc. QC Samples** **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Anions (chloride/nitrate/sulfate) in Water by SW9056	1 x 125 mL HPDE	Cool 4C
		ALSHT	Carbon Dioxide in Water by RSK175	3 x 40 mL Glass	Cool 4C
		ALSHT	Dissolved Gases in Water by RSK175	3 x 40 mL Glass	HCL<pH2
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low Flow/Bladder Pump

Casing ID (in.): 4"

Purge Start Date/Time: 11/10/20 0735

Depth to Water - Initial (DTWi) (ft) 22.08

Purge End Date/Time: 11/10/20 0805

Depth to Well Bottom (ft) 33.35

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 22.85-32.85

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 27.85

Pump Start Time: 0735

Ferrous Iron (Required (Y) or N) 1.07 mg/L

2ND DEPTH TO WATER - 22.08

APTIM

Sample Collection Log

Location ID: 35BWW04 Sample No: 35BWW04-2011**10**

Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/10/20	0740	100	.5	22.15	0.229	21.11	5.99	3.9	190	1.43
	0745	100	1.0	22.20	0.233	20.45	5.99	2.1	210	1.21
	0750	100	1.5	22.24	0.235	20.23	5.97	1.8	211	1.15
	0755	100	2.0	22.26	0.235	20.15	5.96	1.6	211	1.13
	0800	100	2.5	22.28	0.235	20.09	5.96	1.4	212	1.11
↓	0805	100	3.0	22.29	0.235	20.04	5.96	1.2	212	1.10

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **35BWW05**

Sampler(s): Scott Bassinger

FIELD CONDITIONS

Clear

SAMPLING INFORMATION

Sample No: 35BWW05-201109 **DATE/TIME:** 11/9/20 0816 **Pump Inlet Depth:** 33.60

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Casing ID (in.): ~~2~~ 2"

Depth to Water - Initial (DTWi) (ft) 22.90

Depth to Well Bottom (ft) 37.95

Screen Interval (ft): 28.60 - 38.60

Approximate depth of pump inlet*(ft): 33.60

Ferrous Iron (Required Y or (N) _____ mg/L

Purging Method/Equipment: Low flow/Bladder Pump

Purge Start Date/Time: 11/9/20 0825

Purge End Date/Time: 11/9/20 0855

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Pump Start Time: 0825

2ND Depth to water - 22.90

APTIM

Sample Collection Log

Location ID: 35BWW05		Sample No: 35BWW05-201109								
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/9/20	0830	100	.5	22.97	0.292	20.51	5.02	351	245	0.87
	0835	100	1.0	23.03	0.299	20.31	4.77	329	255	0.23
	0840	100	1.5	23.07	0.294	20.20	4.67	320	255	0.10
	0845	100	2.0	23.10	0.294	20.15	4.66	319	254	0.10
	0850	100	2.5	23.12	0.293	20.10	4.65	318	254	0.09
	0855	100	3.0	23.14	0.293	20.06	4.65	317	254	0.09

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **35BWW07**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 35BWW07-20111 **DATE/TIME:** 11/11/20 0829 **Pump Inlet Depth:** 25.67

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low Flow/Bladder Pump

Casing ID (in.): 2"

Purge Start Date/Time: 11/11/20 0835

Depth to Water - Initial (DTWi) (ft) 25.20

Purge End Date/Time: 11/11/20 0905

Depth to Well Bottom (ft) 31.31

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 20.67 - 30.67

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 25.67

Pump Start Time: 0835

Ferrous Iron (Required Y or (N) _____ mg/L

2ND Depth to water - 25.20

APTIM

Sample Collection Log

Location ID: 35BWW07		Sample No: 35BWW07-201111								
Date of Reading	**Time of Reading**	**Purge Rate**	**Total Purge**	**DTW**	**Cond.**	**Temp.**	**pH**	**Turbidity**	**ORP**	**DO**
		(ml/min)	**(L)**	**(ft)**	**(mS/cm)**	**(°C)**		**(NTU)**	**(mV)**	**(mg/L)**
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/11/20	0840	100	.5	25.27	0.706	16.18	6.33	68.3	244	0.79
	0845	100	1.0	25.33	0.700	16.58	6.47	56.5	239	0.20
	0850	100	1.5	25.37	0.690	16.70	6.52	48.7	230	0.17
	0855	100	2.0	25.39	0.689	16.76	6.53	48.2	229	0.16
	0900	100	2.5	25.41	0.689	16.81	6.53	47.8	228	0.16
	0905	100	3.0	25.42	0.689	16.86	6.54	47.4	228	0.16

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **35BWW08**

Sampler(s): Scott Beasinger

FIELD CONDITIONS

Clear

SAMPLING INFORMATION

Sample No: 35BWW08-20111111 **DATE/TIME:** 11/11/20 0632 **Pump Inlet Depth:** 29.72

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Anions (chloride/nitrate/sulfate) in Water by SW9056	1 x 125 mL HPDE	Cool 4C
		ALSHT	Carbon Dioxide in Water by RSK175	3 x 40 mL Glass	Cool 4C
		ALSHT	Dissolved Gases in Water by RSK175	3 x 40 mL Glass	HCL<pH2
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low Flow / Bladder Pump

Casing ID (in.): 2"

Purge Start Date/Time: 11/11/20 0640

Depth to Water - Initial (DTWi) (ft) 24.10

Purge End Date/Time: 11/11/20 0710

Depth to Well Bottom (ft) 34.20

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 24.72 - 34.72

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 29.72

Pump Start Time: 0640

Ferrous Iron (Required (Y) or N) 1.30 mg/L

2ND DEPTH TO WATER - 24.10

APTIM

Sample Collection Log

Location ID: 35BWW08 Sample No: 35BWW08-2011 11

Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/11/20	0645	100	.5	24.17	0.293	18.16	6.06	35.5	240 ~~240~~	1.65
	0650	100	1.0	24.23	0.298	18.59	5.39	29.3	265	1.39
	0655	100	1.5	24.27	0.312	18.78	5.21	21.8	275	1.26
	0700	100	2.0	24.30	0.313	18.83	5.20	21.4	276	1.24
	0705	100	2.5	24.32	0.313	18.87	5.20	21.0	277	1.22
	0710	100	3.0	24.34	0.313	18.90	5.19	20.6	277	1.20

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **35BWW08**

Sampler(s): Scott Baggingar

FIELD CONDITIONS

CLEAR

SAMPLING INFORMATION

Sample No: 35BWW08-201111-FD **DATE/TIME:** 11/11/20 0632 **Pump Inlet Depth:** 29.72

Sampling Method: LF **Sample Purpose:** FD **Sample Matrix:** GW

Appearance of Sample **Assoc. QC Samples** **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Anions (chloride/nitrate/sulfate) in Water by SW9056	1 x 125 mL HPDE	Cool 4C
		ALSHT	Carbon Dioxide in Water by RSK175	3 x 40 mL Glass	Cool 4C
		ALSHT	Dissolved Gases in Water by RSK175	3 x 40 mL Glass	HCL<pH2
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/BLADDER Pump

Casing ID (in.): 2"

Purge Start Date/Time: 11/11/20 0640

Depth to Water - Initial (DTWi) (ft) 24.10

Purge End Date/Time: 11/11/20 0710

Depth to Well Bottom (ft) 34.20

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 24.72 - 34.72

Discharge Tube Diameter: 1/4" Immersible Layer: Y (N)

Approximate depth of pump inlet*(ft): 29.72

Pump Start Time: 0640

Ferrous Iron (Required (Y) or N) 1.30 mg/L

2ND DEPTH TO WATER - 24.10

APTIM

Sample Collection Log

Location ID: 35BWW08		Sample No: 35BWW08-2011_11_-FD								
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		ml/min	L	ft	mS/cm	C		NTU	mV	mg/L
	Purge Stabili ati on Criteria	-	-	Dra do n limit 0.3 ft	_10		_0.1 units	No criteria		_ 10 or 0.2 mg/L
11/11/20	0645	100	.5	24.17	0.293	18.16	6.06	35.5	240	1.65
	0650	100	1.0	24.23	0.298	18.59	5.39	29.3	265	1.39
	0655	100	1.5	24.27	0.312	18.78	5.21	21.8	275	1.26
	0700	100	2.0	24.30	0.313	18.83	5.20	21.4	276	1.24
	0705	100	2.5	24.32	0.313	18.87	5.20	21.0	277	1.22
	0710	100	3.0	24.34	0.313	18.90	5.19	20.6	277	1.20

Logged by: _____ Date: _____

QC d by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **35BWW09**

Sampler(s): Scott Beasinger

FIELD CONDITIONS

Clear

SAMPLING INFORMATION

Sample No: 35BWW09-201109 **DATE/TIME:** 11/9/20 1117 **Pump Inlet Depth:** 32.01

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low Flow/Bladder Pump

Casing ID (in.): 4"

Purge Start Date/Time: 11/9/20 1125

Depth to Water - Initial (DTWi) (ft) 25.17

Purge End Date/Time: 11/9/20 1155

Depth to Well Bottom (ft) 37.05

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 27.01 - 37.01

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 32.01

Pump Start Time: 1125

Ferrous Iron (Required Y or (N)) _____ mg/L

2ND DEPTH TO WATER - 25.17

APTIM

Sample Collection Log

Location ID: 35BWW09				Sample No: 35BWW09-201109						
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/9/20	1130	100	.5	25.25	0.373	24.67	6.13	27.3	189	0.69
	1135	100	1.0	25.31	0.380	23.45	6.60	22.2	175	0.18
	1140	100	1.5	25.35	0.390	23.05	6.81	19.9	164	0.11
	1145	100	2.0	25.37	0.391	22.95	6.82	19.5	163	0.11
	1150	100	2.5	25.38	0.391	22.88	6.82	19.0	162	0.10
	1155	100	3.0	25.39	0.391	22.82	6.83	18.6	162	0.10

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **35BWW10**

Sampler(s): Scott Baggingar

FIELD CONDITIONS

Clear

SAMPLING INFORMATION

Sample No: 35BWW10-201109 **DATE/TIME:** 11/9/20 0731 **Pump Inlet Depth:** 28.62

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample **Assoc. QC Samples** **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Lowflow/Bladder Pump

Casing ID (in.): 2"

Purge Start Date/Time: 11/9/20 0740

Depth to Water - Initial (DTWi) (ft) 23.73

Purge End Date/Time: 11/9/20 0810

Depth to Well Bottom (ft) 36.39

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 21.23 - 36.00

Discharge Tube Diameter: 1/4" Immersible Layer: Y (N)

Approximate depth of pump inlet*(ft): 28.62

Pump Start Time: _____

Ferrous Iron (Required Y or (N) _____ mg/L

2ND Depth to water - 23.73

APTIM

Sample Collection Log

Location ID: 35BWW10		Sample No: 35BWW10-2011 09								
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/9/20	0745	100	.5	23.80	0.208	20.53	5.32	208	233	1.08
	0750	100	1.0	23.86	0.213	20.47	4.88	188	247	0.74
	0755	100	1.5	23.90	0.219	20.44	4.85	175	247	0.73
	0800	100	2.0	23.92	0.220	20.42	4.84	174	247	0.72
	0805	100	2.5	23.94	0.220	20.39	4.84	173	248	0.71
↓	0810	100	3.0	23.96	0.220	20.37	4.84	173	248	0.70

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Location ID: **35BWW11**

Project No: **501032**

Sampler(s): Scott Bassinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 35BWW11-201109 **DATE/TIME:** 11/9/20 0948 **Pump Inlet Depth:** 32.16

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low Flow / BLADDER Pump

Casing ID (in.): 4"

Purge Start Date/Time: 11/9/20 0955

Depth to Water - Initial (DTWi) (ft) 22.52

Purge End Date/Time: 11/9/20 1025

Depth to Well Bottom (ft) 36.65

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 27.41 - ~~36.41~~ 37.41 ft btoc

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / (N)

L George 07/15/2021

Approximate depth of pump inlet*(ft): 32.16

Pump Start Time: 0955

Ferrous Iron (Required Y or (N)) _____ mg/L

2ND DEPTH TO WATER - 22.52

APTIM

Sample Collection Log

Location ID: 35BWW11				Sample No: 35BWW11-2011_09						
Date of Reading	**Time of Reading**	**Purge Rate**	**Total Purge**	**DTW**	**Cond.**	**Temp.**	**pH**	**Turbidity**	**ORP**	**DO**
		(ml/min)	**(L)**	**(ft)**	**(mS/cm)**	**(°C)**		**(NTU)**	**(mV)**	**(mg/L)**
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/9/20	1000	100	.5	22.60	0.286	22.18	5.86	26.5	205	0.80
	1005	100	1.5	22.66	0.293	22.25	5.83	19.3	199	0.31
	1010	100	2.0	22.70	0.295	22.28	5.85	16.8	190	0.16
	1015	100	2.5	22.72	0.296	22.31	5.85	16.5	189	0.15
	1020	100	3.0	22.74	0.296	22.35	5.85	16.2	188	0.15
↓	1025	100	3.5	22.75	0.296	22.38	5.85	15.9	188	0.15

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **35BWW12**

Sampler(s): Scott Baesinger

FIELD CONDITIONS

CLEAR

SAMPLING INFORMATION

Sample No: 35BWW12-201111 **DATE/TIME:** 11/11/20 0726 **Pump Inlet Depth:** 30.30

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample **Assoc. QC Samples** **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Anions (chloride/nitrate/sulfate) in Water by SW 0 6	1 x 12 mL HPDE	Cool 4C
		ALSHT	Carbon Dioxide in Water by RS 1	3 x 40 mL Glass	Cool 4C
		ALSHT	Dissolved Gases in Water by RS 1	3 x 40 mL Glass	HCL<pH2
		ALSHT	TOC in Water by SM 310C	2 x 40 mL Amber	H2SO4
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow / BLADDER Pump

Casing ID (in.): 2 11

Purge Start Date/Time: 11/11/20 0735

Depth to Water - Initial (DTWi) (ft) 21.00

Purge End Date/Time: 11/11/20 0805

Depth to Well Bottom (ft) 38.25

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 22.95 - 37.65

Discharge Tube Diameter: 1/4 11 Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 30.30

Pump Start Time: 0735

Ferrous Iron (Required (Y) or N) 3.27 mg/L

2ND DEPTH TO WATER - 21.00

APTIM

Sample Collection Log

Location ID: 35BWW12		Sample No: 35BWW12-201111								
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/11/20	0740	100	.5	21.07	0.260	17.27	6.27	363	246	0.88
	0745	100	1.0	21.13	0.260	17.82	5.41	329	270	0.37
	0750	100	1.5	21.17	0.262	17.86	4.87	297	282	0.15
	0755	100	2.0	21.19	0.263	17.90	4.86	296	283	0.15
	0800	100	2.5	21.21	0.263	17.95	4.85	296	284	0.14
	0805	100	3.0	21.22	0.263	17.98	4.85	295	285	0.14

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **35BWW12**

Sampler(s): Scott Beggs, NGAR

FIELD CONDITIONS

CLEAR

SAMPLING INFORMATION

Sample No: 35BWW12-2011 11 -MS **DATE/TIME:** 11/11/20 0726 **Pump Inlet Depth:** 30.30

Sampling Method: LF **Sample Purpose:** MS **Sample Matrix:** GW

Appearance of Sample | **Assoc. QC Samples** | **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Anions (chloride/nitrate/sulfate) in Water by SW9056	1 x 125 mL HPDE	Cool 4C
		ALSHT	Carbon Dioxide in Water by RSK175	3 x 40 mL Glass	Cool 4C
		ALSHT	Dissolved Gases in Water by RSK175	3 x 40 mL Glass	HCL<pH2
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/BLADDER Pump

Casing ID (in.): 2"

Purge Start Date/Time: 11/11/20 0735

Depth to Water - Initial (DTWi) (ft) 21.00

Purge End Date/Time: 11/11/20 0805

Depth to Well Bottom (ft) 38.25

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 22.95 - 37.65

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 30.30

Pump Start Time: 0735

Ferrous Iron (Required (Y) or N) 3.27 mg/L

2ND Depth To WATER - 21.00

APTIM

Sample Collection Log

Location ID: 35BWW12 Sample No: 35BWW12-2011_11_-MS

Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		ml/min	L	ft	mS/cm	C		NTU	mV	mg/L
	Purge Stabili ati on Criteria	-	-	Dra do n limit 0.3 ft	_10		_0.1 units	No criteria		_ 10 or 0.2 mg/L
11/11/20	0740	100	.5	21.07	0.260	17.27	6.27	363	246	0.88
	0745	100	1.0	21.13	0.260	17.82	5.41	329	270	0.37
	0750	100	1.5	21.17	0.262	17.86	4.87	297	282	0.15
	0755	100	2.0	21.19	0.263	17.90	4.86	296	283	0.15
	0800	100	2.5	21.21	0.263	17.95	4.85	296	284	0.14
	0805	100	3.0	21.22	0.263	17.98	4.85	295	285	0.14

Logged by: _____ Date: _____

QC d by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **35BWW12**

Sampler(s): Scott Bassinger

FIELD CONDITIONS

Clear

SAMPLING INFORMATION

Sample No: 35BWW12-20111 1 -MSD **DATE/TIME:** 11/11/20 0726 **Pump Inlet Depth:** 30.30

Sampling Method: LF **Sample Purpose:** MSD **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Anions (chloride/nitrate/sulfate) in Water by SW9056	1 x 125 mL HPDE	Cool 4C
		ALSHT	Carbon Dioxide in Water by RSK175	3 x 40 mL Glass	Cool 4C
		ALSHT	Dissolved Gases in Water by RSK175	3 x 40 mL Glass	HCL<pH2
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/BLADDER Pump

Casing ID (in.): 2"

Purge Start Date/Time: 11/11/20 0735

Depth to Water - Initial (DTWi) (ft) 21.00

Purge End Date/Time: 11/11/20 0740

Depth to Well Bottom (ft) 38.25

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 22.95 - 37.65

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 30.30

Pump Start Time: 0735

Ferrous Iron (Required) (Y) or N) 3.27 mg/L

2ND Depth to water- 21.00

APTIM

Sample Collection Log

Location ID: 35BWW12		Sample No: 35BWW12-2011_11_-MSD								
Date of Reading	**Time of Reading**	**Purge Rate**	**Total Purge**	**DTW**	**Cond.**	**Temp.**	**pH**	**Turbidity**	**ORP**	**DO**
		(ml/min)	**(L)**	**(ft)**	**(mS/cm)**	**(°C)**		**(NTU)**	**(mV)**	**(mg/L)**
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/11/20	0740	100	.5	21.07	0.260	17.27	6.27	363	246	0.88
	0745	100	1.0	21.13	0.260	17.82	5.41	329	270	0.37
	0750	100	1.5	21.17	0.262	17.86	4.87	297	282	0.15
	0755	100	2.0	21.19	0.263	17.90	4.86	296	283	0.15
	0800	100	2.5	21.21	0.263	17.95	4.85	296	284	0.14
	0805	100	3.0	21.22	0.263	17.98	4.85	295	285	0.14

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **35BWW13**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 35BWW13-2011 11 **DATE/TIME:** 11/11/20 0911 **Pump Inlet Depth:** 29.60

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Lowflow/BLADDER Pump

Casing ID (in.): 2 11

Purge Start Date/Time: 11/11/20 0915

Depth to Water - Initial (DTWi) (ft) 23.64

Purge End Date/Time: 11/11/20 0945

Depth to Well Bottom (ft) 36.71

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 22.25 - 36.95

Discharge Tube Diameter: 1/4 11 Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 29.60

Pump Start Time: 0915

Ferrous Iron (Required Y or (N)) _____ mg/L

2ND DEPTH TO WATER - 23.64

APTIM

Sample Collection Log

Location ID: 35BWW13		Sample No: 35BWW13-201111								
Date of Reading	**Time of Reading**	**Purge Rate**	**Total Purge**	**DTW**	**Cond.**	**Temp.**	**pH**	**Turbidity**	**ORP**	**DO**
		(ml/min)	**(L)**	**(ft)**	**(mS/cm)**	**(°C)**		**(NTU)**	**(mV)**	**(mg/L)**
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/11/20	0920	100	.5	23.70	0.183	16.88	5.09	66.2	200	4.03
	0925	100	1.0	23.75	0.175	17.21	4.75	53.5	255	3.77
	0930	100	1.5	23.78	0.167	17.54	4.43	50.7	272	3.61
	0935	100	2.0	23.80	0.167	17.68	4.42	50.4	273	3.58
	0940	100	2.5	23.82	0.166	17.79	4.41	49.8	274	3.55
↓	0945	100	3.0	23.83	0.166	17.86	4.41	49.3	275	3.54

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Location ID: **35BWW14**

Project No: **501032**

Sampler(s): Scott Baggenger

FIELD CONDITIONS CLEAR

SAMPLING INFORMATION

Sample No: 35BWW14-201110 **DATE/TIME:** 11/10/20 0819 **Pump Inlet Depth:** 31.71

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample | **Assoc. QC Samples** | **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Anions (chloride/nitrate/sulfate) in Water by SW9056	1 x 125 mL HPDE	Cool 4C
		ALSHT	Carbon Dioxide in Water by RSK175	3 x 40 mL Glass	Cool 4C
		ALSHT	Dissolved Gases in Water by RSK175	3 x 40 mL Glass	HCL<pH2
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low Flow/BLADDER Pump

Casing ID (in.): 4"

Purge Start Date/Time: 11/10/20 0830

Depth to Water - Initial (DTWi) (ft) 21.73

Purge End Date/Time: 11/10/20 0900

Depth to Well Bottom (ft) 37.31

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 26.71-36.71

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 31.71

Pump Start Time: 0830

Ferrous Iron (Required (Y) or N) 0.95 mg/L

2ND DEPTH TO WATER-21.73

APTIM

Sample Collection Log

Location ID: 35BWW14		Sample No: 35BWW14-2011 10								
Date of Reading	**Time of Reading**	**Purge Rate**	**Total Purge**	**DTW**	**Cond.**	**Temp.**	**pH**	**Turbidity**	**ORP**	**DO**
		(ml/min)	**(L)**	**(ft)**	**(mS/cm)**	**(°C)**		**(NTU)**	**(mV)**	**(mg/L)**
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/10/20	0835	100	.5	21.80	0.366	20.26	6.50	3.1	195	0.71
	0840	100	1.0	21.86	0.370	20.09	6.35	2.0	200	0.18
	0845	100	1.5	21.90	0.372	19.95	6.30	1.1	200	0.07
	0850	100	2.0	21.93	0.372	19.88	6.29	0.5	201	0.07
	0855	100	2.5	21.95	0.372	19.82	6.29	0.0	201	0.06
↓	0900	100	3.0	21.96	0.372	19.77	6.29	0.0	202	0.06

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **35BWW15**

Sampler(s): Scott Baysinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 35BWW15-20111O **DATE/TIME:** 11/10/20 0911 **Pump Inlet Depth:** 34.34

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Casing ID (in.): 2"

Depth to Water - Initial (DTWi) (ft) 22.38

Depth to Well Bottom (ft) 50.12

Screen Interval (ft): 19.34 - 49.34

Approximate depth of pump inlet*(ft): 34.34

Ferrous Iron (Required Y or (N) _____ mg/L

Purging Method/Equipment: Low flow/BLADDER Pump

Purge Start Date/Time: 11/10/20 0920

Purge End Date/Time: 11/10/20 0950

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immersible Layer: Y /(N)

Pump Start Time: 0920

2ND DEPTH TO WATER - 22.38

APTIM

Sample Collection Log

Location ID: 35BWW15		Sample No: 35BWW15-2011 10								
Date of Reading	**Time of Reading**	**Purge Rate**	**Total Purge**	**DTW**	**Cond.**	**Temp.**	**pH**	**Turbidity**	**ORP**	**DO**
		(ml/min)	**(L)**	**(ft)**	**(mS/cm)**	**(°C)**		**(NTU)**	**(mV)**	**(mg/L)**
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/10/20	0925	100	.5	22.45	0.321	20.49	6.76	48.7	176	1.22
	0930	100	1.0	22.50	0.323	20.27	5.57	43.3	219	0.97
	0935	100	1.5	22.53	0.326	20.17	5.25	39.6	235	0.72
	0940	100	2.0	22.55	0.327	20.12	5.24	39.2	236	0.71
	0945	100	2.5	22.56	0.327	20.08	5.23	38.5	237	0.70
↓	0950	100	3.0	22.57	0.327	20.04	5.23	38.2	238	0.69

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **35BWW16**

Sampler(s): Scott Baesinger

FIELD CONDITIONS

Clear

SAMPLING INFORMATION

Sample No: 35BWW16-201111 **DATE/TIME:** 11/11/20 0951 **Pump Inlet Depth:** 29.01

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample | **Assoc. QC Samples** | **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/Bladder Pump

Casing ID (in.): 2 11

Purge Start Date/Time: 11/11/20 1000

Depth to Water - Initial (DTWi) (ft) 21.89

Purge End Date/Time: 11/11/20 1030

Depth to Well Bottom (ft) 36.91

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 21.66 - 36.36

Discharge Tube Diameter: 1/4 11 Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 29.01

Pump Start Time: 1000

Ferrous Iron (Required Y or (N)) _____ mg/L

2ND DEPTH TO WATER- 21.89

APTIM

Sample Collection Log

Location ID: 35BWW16					Sample No: 35BWW16-201111					
Date of Reading	**Time of Reading**	**Purge Rate**	**Total Purge**	**DTW**	**Cond.**	**Temp.**	**pH**	**Turbidity**	**ORP**	**DO**
		ml/min	**L**	**ft**	**mS/cm**	**C**		**NTU**	**mV**	**mg/L**
	Purge Stabili ati on Criteria	-	-	Dra do n limit 0.3 ft	_10		_0.1 units	No criteria		_ 10 or 0.2 mg/L
11/11/20	1005	100	.5	21.96	0.203	17.81	5.04	431	257	0.85
	1010	100	1.0	22.02	0.205	17.85	4.65	372	273	0.36
	1015	100	1.5	22.05	0.208	17.90	4.45	359	280	0.16
	1020	100	2.0	22.07	0.208	17.94	4.44	358	281	0.16
	1025	100	2.5	22.08	0.209	17.99	4.43	357	281	0.15
↓	1030	100	3.0	22.09	0.209	18.06	4.43	357	281	0.15

Logged by: _____ Date: _____

QC d by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **35BWW17**

Sampler(s): Scott Beesinger

FIELD CONDITIONS

Clear

SAMPLING INFORMATION

Sample No: 35BWW17-201111 **DATE/TIME:** 11/11/20 1036 **Pump Inlet Depth:** 28.49

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/BLADDER Pump

Casing ID (in.): 2 11

Purge Start Date/Time: 11/11/20 1040

Depth to Water - Initial (DTWi) (ft) 21.12

Purge End Date/Time: 11/11/20 1110

Depth to Well Bottom (ft) 36.23

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 21.14-35.84

Discharge Tube Diameter: 1/4 11

Immersible Layer: Y (N)

Approximate depth of pump inlet*(ft): 28.49

Pump Start Time: 1040

Ferrous Iron (Required Y or (N) _____ mg/L

2ND Depth TO WATER 21.12

APTIM

Sample Collection Log

Location ID: 35BWW17				Sample No: 35BWW17-201111						
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/11/20	1045	100	.5	21.19	0.051	18.24	4.93	301	260	0.86
	1050	100	1.0	21.25	0.049	18.35	4.77	253	271	0.47
	1055	100	1.5	21.28	0.049	18.49	4.55	241	280	0.45
	1100	100	2.0	21.30	0.048	18.55	4.54	240	281	0.44
	1105	100	2.5	21.32	0.048	18.60	4.53	239	282	0.43
↓	1110	100	3.0	21.33	0.048	18.66	4.52	238	282	0.43

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **35BWW18**

Sampler(s): Scott Bassinger

FIELD CONDITIONS CLEAR

SAMPLING INFORMATION

Sample No: 35BWW18-201109 **DATE/TIME:** 11/9/20 1246 **Pump Inlet Depth:** 28.06

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low Flow/ Peristaltic Pump

Casing ID (in.): 2 11

Purge Start Date/Time: ~~11/9/20~~ 11/9/20 1255

Depth to Water - Initial (DTWi) (ft) 26.15

Purge End Date/Time: 11/9/20 1335

Depth to Well Bottom (ft) 35.45

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 20.69 - 35.42

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 28.06

Pump Start Time: 1215

Ferrous Iron (Required Y or (N)) _____ mg/L

2ND DEPTH TO WATER - 26.15

APTIM

Sample Collection Log

Location ID: 35BWW18				Sample No: 35BWW18-201109						
Date of Reading	**Time of Reading**	**Purge Rate**	**Total Purge**	**DTW**	**Cond.**	**Temp.**	**pH**	**Turbidity**	**ORP**	**DO**
		(ml/min)	**(L)**	**(ft)**	**(mS/cm)**	**(°C)**		**(NTU)**	**(mV)**	**(mg/L)**
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/9/20	1300	100	.5	26.22	2.08	21.12	6.93	19.3	149	0.93
	1305	100	1.0	26.27	2.15	20.97	6.70	15.5	157	0.49
	1310	100	1.5	26.31	2.20	20.93	6.55	13.7	165	0.32
	1315	100	2.0	26.34	2.21	20.90	6.54	13.3	166	0.31
	1320	100	2.5	26.36	2.21	20.86	6.53	12.9	167	0.31
↓	1325	100	3.0	26.38	2.22	20.82	6.53	12.5	168	0.30

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **35BWW19**

Sampler(s): Scott Beesinger

FIELD CONDITIONS

CLEAR

SAMPLING INFORMATION

Sample No: 35BWW19-20111**09**

DATE/TIME: 11/9/20 1201

Pump Inlet Depth: 28.68

Sampling Method: LF

Sample Purpose: REG

Sample Matrix: GW

Appearance of Sample

Assoc. QC Samples

Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/BLADDER Pump

Casing ID (in.): 2"

Purge Start Date/Time: 11/9/20 1210

Depth to Water - Initial (DTWi) (ft) 25.75

Purge End Date/Time: 11/9/20 1240

Depth to Well Bottom (ft) 36.63

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 21.31-36.04

Discharge Tube Diameter: 1/4"

Immersible Layer: Y /(N)

Approximate depth of pump inlet*(ft): 28.68

Pump Start Time: 1210

Ferrous Iron (Required Y or (N) _____ mg/L

2ND DEPTH TO WATER - 25.75

APTIM

Sample Collection Log

Location ID: 35BWW19		Sample No: 35BWW19-201109								
Date of Reading	**Time of Reading**	**Purge Rate**	**Total Purge**	**DTW**	**Cond.**	**Temp.**	**pH**	**Turbidity**	**ORP**	**DO**
		(ml/min)	**(L)**	**(ft)**	**(mS/cm)**	**(°C)**		**(NTU)**	**(mV)**	**(mg/L)**
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/9/20	1215	100	.5	25.82	2.55	22.08	6.52	72.3	178	1.53
	1220	100	1.0	25.88	2.68	20.99	6.43	64.7	180	1.30
	1225	100	1.5	25.92	2.82	20.94	6.40	54.6	178	1.09
	1230	100	2.0	25.95	2.82	20.89	6.39	54.1	178	1.07
	1235	100	2.5	25.97	2.83	20.85	6.38	53.5	177	1.05
↓	1240	100	3.0	25.99	2.83	20.79	6.38	53.0	177	1.03

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **35BWW20**

Sampler(s): Scott Baesinger

FIELD CONDITIONS

Clear

SAMPLING INFORMATION

Sample No: 35BWW20-201109 **DATE/TIME:** 11/9/20 1031 **Pump Inlet Depth:** 25.50

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample **Assoc. QC Samples** **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/BLADDER Pump

Casing ID (in.): 2"

Purge Start Date/Time: 11/9/20 1040

Depth to Water - Initial (DTWi) (ft) 24.80

Purge End Date/Time: 11/9/20 1110

Depth to Well Bottom (ft) 32.95

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 17.70 - 32.46

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 25.50

Pump Start Time: 1040

Ferrous Iron (Required Y or (N) _____ mg/L

2ND DEPTH TO WATER - 24.80

APTIM

Sample Collection Log

Location ID: 35BWW20		Sample No: 35BWW20-2011 09								
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/9/20	1045	100	.5	24.87	0.244	23.34	5.87	353	188	1.89
	1050	100	1.0	24.93	0.231	23.35	5.01	321	217	1.57
	1055	100	1.5	24.97	0.237	23.36	5.04	303	218	1.47
	1100	100	2.0	25.00	0.238	23.37	5.10	302	219	1.45
	1105	100	2.5	25.02	0.238	23.38	5.10	301	220	1.44
	1110	100	3.0	25.04	0.238	23.39	5.11	300	220	1.43

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **35BWW20**

Sampler(s): Scott Bessinger

FIELD CONDITIONS

Clear

SAMPLING INFORMATION

Sample No: 35BWW20-201109-FD **DATE/TIME:** 11/9/20 1031 **Pump Inlet Depth:** 25.08

Sampling Method: LF **Sample Purpose:** FD **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow / Bladder Pump

Casing ID (in.): 2"

Purge Start Date/Time: 11/9/20 1040

Depth to Water - Initial (DTWi) (ft) 24.80

Purge End Date/Time: 11/9/20 1110

Depth to Well Bottom (ft) 32.95

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 17.70 - 32.46

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 25.08

Pump Start Time: 1040

Ferrous Iron (Required Y or (N)) _____ mg/L

2ND DEPTH TO WATER - 24.80

APTIM

Sample Collection Log

Location ID: 35BWW20				Sample No: 35BWW20-201109-FD						
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		ml/min	L	ft	mS/cm	C		NTU	mV	mg/L
	Purge Stabili ati on Criteria	-	-	Dra do n limit 0.3 ft	_10		_0.1 units	No criteria		_ 10 or 0.2 mg/L
11/9/20	1045	100	.5	24.87	0.244	23.34	5.87	353	188	1.89
	1050	100	1.0	24.93	0.231	23.35	5.01	321	217	1.57
	1055	100	1.5	24.97	0.237	23.36	5.09	303	218	1.47
	1100	100	2.0	25.00	0.238	23.37	5.10	302	219	1.45
	1105	100	2.5	25.02	0.238	23.38	5.10	301	220	1.44
	1110	100	3.0	25.04	0.238	23.39	5.11	300	220	1.43

Logged by: _____ Date: _____

QC d by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **35BWW23**

Sampler(s): Scott Beesinger

FIELD CONDITIONS

Clear

SAMPLING INFORMATION

Sample No: 35BWW23-201110 **DATE/TIME:** 11/10/20 0956 **Pump Inlet Depth:** 27.63

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample | **Assoc. QC Samples** | **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Anions (chloride/nitrate/sulfate) in Water by SW9056	1 x 125 mL HPDE	Cool 4C
		ALSHT	Carbon Dioxide in Water by RSK175	3 x 40 mL Glass	Cool 4C
		ALSHT	Dissolved Gases in Water by RSK175	3 x 40 mL Glass	HCL<pH2
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow Bladder Pump

Casing ID (in.): 4"

Purge Start Date/Time: 11/10/20 1000

Depth to Water - Initial (DTWi) (ft) 27.00

Purge End Date/Time: 11/10/20 1030

Depth to Well Bottom (ft) 33.60

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 22.63 - ~~33.63~~ 32.63 ft btoc

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / (N)

L George 07/15/2021

Approximate depth of pump inlet*(ft): 27.63

Pump Start Time: 1000

Ferrous Iron (Required (Y) or N) 0.82 mg/L

2nd Depth to water - 27.00

APTIM

Sample Collection Log

Location ID: 35BWW23				Sample No: 35BWW23-201110						
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/10/20	1005	100	.5	27.08	0.382	20.88	6.02	2.7	201	1.39
	1010	100	1.0	27.14	0.390	20.51	5.25	1.3	237	1.01
	1015	100	1.5	27.18	0.396	20.45	5.06	0.7	248	0.89
	1020	100	2.0	27.21	0.396	20.40	5.05	0.0	249	0.88
	1025	100	2.5	27.24	0.397	20.34	5.04	0.0	250	0.87
↓	1030	100	3.0	27.26	0.397	20.30	5.03	0.0	250	0.86

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **35BWW24**

Sampler(s): Scott Baessinger

FIELD CONDITIONS

Clear

SAMPLING INFORMATION

Sample No: 35BWW24-201116 **DATE/TIME:** 11/10/20 1040 **Pump Inlet Depth:** 29.00

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample | **Assoc. QC Samples** | **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/BLADDER Pump

Casing ID (in.): 4"

Purge Start Date/Time: 11/10/20 1050

Depth to Water - Initial (DTWi) (ft) 28.22

Purge End Date/Time: 11/10/20 1120

Depth to Well Bottom (ft) 32.75

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 22.72 - 32.42

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 29.00 Pump Start Time: 1050

Ferrous Iron (Required Y or (N)) _____ mg/L

2ND DEPTH TO WATER - 28.22

APTIM

Sample Collection Log

Location ID: 35BWW24		Sample No: 35BWW24-201110								
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/10/20	1055	100	.5	28.30	1.24	20.32	5.95	17.3	227	1.95
	1100	100	1.0	28.36	1.27	19.91	6.00	13.7	225	1.79
	1105	100	1.5	28.40	1.29	19.84	6.03	9.9	223	1.73
	1110	100	2.0	28.43	1.29	19.75	6.04	9.6	222	1.71
	1115	100	2.5	28.46	1.29	19.68	6.04	8.9	221	1.69
	1120	100	3.0	28.50	1.29	19.63	6.04	8.5	221	1.68

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **35BWW25**

Sampler(s): Scott Bassinger

FIELD CONDITIONS Clear

SAMPLING INFORMATION

Sample No: 35BWW25-20111D **DATE/TIME:** 11/10/20 1132 **Pump Inlet Depth:** 27.32

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/BLADDER Pump

Casing ID (in.): 4"

Purge Start Date/Time: 11/10/20 1140

Depth to Water - Initial (DTWi) (ft) 25.92

Purge End Date/Time: 11/10/20 1215

Depth to Well Bottom (ft) 32.48

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 22.47 - 32.17

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 27.32

Pump Start Time: 1140

Ferrous Iron (Required Y or (N)) _____ mg/L

2ND DEPTH TO WATER - 25.92

APTIM

Sample Collection Log

Location ID: 35BWW25				Sample No: 35BWW25-2011 10						
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/10/20	1145	100	.5	26.00	0.679	20.00	6.21	37.3	203	1.13
	1150	100	1.0	26.05	0.676	19.89	6.05	30.5	217	0.97
	1155	100	1.5	26.09	0.674	19.85	5.50	25.7	230	0.80
	1200	100	2.0	26.12	0.672	19.82	5.28	23.5	239	0.65
	1205	100	2.5	26.14	0.672	19.77	5.27	23.0	240	0.64
	1210	100	3.0	26.16	0.672	19.73	5.27	22.7	241	0.64
↓	1215	100	3.5	26.17	0.672	19.70	5.26	22.2	241	0.63

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **35BWW26**

Sampler(s): Scott Beesinger

FIELD CONDITIONS

CLEAR

SAMPLING INFORMATION

Sample No: 35BWW26-20111 0

DATE/TIME: 11/10/20 0641

Pump Inlet Depth: 32.50

Sampling Method: LF

Sample Purpose: REG

Sample Matrix: GW

Appearance of Sample

Assoc. QC Samples

Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Anions (chloride/nitrate/sulfate) in Water by SW 0 6	1 x 12 mL HPDE	Cool 4C
		ALSHT	Carbon Dioxide in Water by RS 1	3 x 40 mL Glass	Cool 4C
		ALSHT	Dissolved Gases in Water by RS 1	3 x 40 mL Glass	HCL<pH2
		ALSHT	TOC in Water by SM 310C	2 x 40 mL Amber	H2SO4
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Casing ID (in.): 4"

Depth to Water - Initial (DTWi) (ft) 26.11

Depth to Well Bottom (ft) 38.00

Screen Interval (ft): 27.65 - 37.35

Approximate depth of pump inlet*(ft): 32.50

Ferrous Iron (Required (Y) or N) 0.96 mg/L

Purging Method/Equipment: Low flow / BLADDER Pump

Purge Start Date/Time: 11/10/20 0650

Purge End Date/Time: 11/10/20 0720

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Pump Start Time: 0650

2ND DEPTH TO WATER - 26.11

APTIM

Sample Collection Log

Location ID: 35BWW26 Sample No: 35BWW26-201110

Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/10/20	0655	100	.5	26.19	0.275	21.51	5.24	11.1	245	1.35
	0700	100	1.0	26.25	0.243	20.97	5.25	4.5	238	0.98
	0705	100	1.5	26.29	0.232	20.77	5.16	2.1	238	0.85
	0710	100	2.0	26.32	0.231	20.70	5.15	0.9	237	0.84
	0715	100	2.5	26.35	0.231	20.64	5.14	0.0	237	0.83
↓	0720	100	3.0	26.37	0.231	20.59	5.14	0.0	237	0.82

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **LHSMW58**

Sampler(s): Scott Baesinger

FIELD CONDITIONS

CLEAR

SAMPLING INFORMATION

Sample No: LHSMW58-201109 **DATE/TIME:** 11/9/20 0902 **Pump Inlet Depth:** 29.18

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow / BLADDER Pump

Casing ID (in.): 4"

Purge Start Date/Time: 11/9/20 0910

Depth to Water - Initial (DTWi) (ft) 23.40

Purge End Date/Time: 11/9/20 0940

Depth to Well Bottom (ft) 35.17

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 24.18 - 34.18

Discharge Tube Diameter: 1/4" Immersible Layer: Y (N)

Approximate depth of pump inlet*(ft): 29.18

Pump Start Time: 0910

Ferrous Iron (Required Y or (N)) _____ mg/L

2ND DEPTH TO WATER - 23.40

APTIM

Sample Collection Log

Location ID: LHSMW58 Sample No: LHSMW58-201109

Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		ml/min	L	ft	mS/cm	C		NTU	mV	mg/L
	Purge Stabili ati on Criteria	-	-	Dra do n limit 0.3 ft	_10		_0.1 units	No criteria		_ 10 or 0.2 mg/L
11/9/20	0915	100	.5	23.48	0.195	20.94	5.66	16.2	218	2.65
	0920	100	1.0	23.53	0.193	21.05	5.62	11.0	215	2.48
	0925	100	1.5	23.57	0.193	21.08	5.60	6.8	214	2.37
	0930	100	2.0	23.59	0.193	21.11	5.59	5.0	214	2.35
	0935	100	2.5	23.60	0.193	21.13	5.59	4.1	213	2.34
	0940	100	3.0	23.61	0.193	21.15	5.59	3.5	213	2.33

Logged by: _____ Date: _____

QC d by: _____ Date: _____

01072697

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **LHSMW58**

Sampler(s): Scott Baggingar

FIELD CONDITIONS

Clear

SAMPLING INFORMATION

Sample No: LHSMW58-201109-MS **DATE/TIME:** 11/9/20 0902 **Pump Inlet Depth:** 29.18

Sampling Method: LF **Sample Purpose:** MS **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/BLADDER Pump

Casing ID (in.): 4"

Purge Start Date/Time: 11/9/20 0910

Depth to Water - Initial (DTWi) (ft) 23.40

Purge End Date/Time: 11/9/20 0940

Depth to Well Bottom (ft) 35.17

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 24.18 - 34.18

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 29.18

Pump Start Time: 0910

Ferrous Iron (Required Y or (N)) _____ mg/L

2ND DEPTH TO WATER - 23.40

APTIM

Sample Collection Log

Location ID: LHSMW58		Sample No: LHSMW58-201109-MS								
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/9/20	0915	100	1.5	23.48	0.195	20.94	5.66	16.2	218	2.65
	0920	100	1.0	23.53	0.193	21.05	5.62	11.0	215	2.48
	0925	100	1.5	23.57	0.193	21.08	5.60	6.8	214	2.37
	0930	100	2.0	23.59	0.193	21.11	5.59	5.0	214	2.35
	0935	100	2.5	23.60	0.193	21.13	5.59	4.1	213	2.34
↓	0940	100	3.0	23.61	0.193	21.15	5.59	3.5	213	2.33

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **LHSMW58**

Sampler(s): Scott Beggingar

FIELD CONDITIONS

CLEAR

SAMPLING INFORMATION

Sample No: LHSMW58-201109-MSD **DATE/TIME:** 11/9/20 0902 **Pump Inlet Depth:** 29.18

Sampling Method: LF **Sample Purpose:** MSD **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/BLADDER Pump

Casing ID (in.): 4"

Purge Start Date/Time: 11/9/20 0910

Depth to Water - Initial (DTWi) (ft) 23.40

Purge End Date/Time: 11/9/20 0940

Depth to Well Bottom (ft) 35.17

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 24.18 - 34.18

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 29.18

Pump Start Time: 0910

Ferrous Iron (Required Y or (N)) _____ mg/L

2ND DEPTH TO WATER - 23.40

APTIM

Sample Collection Log

Location ID: LHSMW58		Sample No: LHSMW58-201109-MSD								
Date of Reading	**Time of Reading**	**Purge Rate**	**Total Purge**	**DTW**	**Cond.**	**Temp.**	**pH**	**Turbidity**	**ORP**	**DO**
		(ml/min)	**(L)**	**(ft)**	**(mS/cm)**	**(°C)**		**(NTU)**	**(mV)**	**(mg/L)**
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
11/9/20	0915	100	.5	23.48	0.195	20.94	5.66	16.2	218	2.65
	0920	100	1.0	23.53	0.193	21.05	5.62	11.0	215	2.48
	0925	100	1.5	23.57	0.193	21.08	5.60	6.8	214	2.37
	0930	100	2.0	23.59	0.193	21.11	5.59	5.0	214	2.35
	0935	100	2.5	23.60	0.193	21.13	5.59	4.1	213	2.34
↓	0940	100	3.0	23.61	0.193	21.15	5.59	3.5	213	2.33

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **35BSW01**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Cloudy

SAMPLING INFORMATION

Sample No: 35BSW01-210513 **DATE/TIME:** 5/13/21 **Pump Inlet Depth:** NA

Sampling Method: GRAB **Sample Purpose:** REG **Sample Matrix:** SW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

NO Sample Required

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **35BSW02**

Sampler(s): Scott Beasingal

FIELD CONDITIONS Cloudy

SAMPLING INFORMATION

Sample No: 35BSW02-210518 **DATE/TIME:** 5/18/21 1305 **Pump Inlet Depth:** NA

Sampling Method: GRAB **Sample Purpose:** REG **Sample Matrix:** SW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

NO SAMPLE REQUIRED

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **35BWW01**

Sampler(s): Scott Bressinger

FIELD CONDITIONS

Cloudy

SAMPLING INFORMATION

Sample No: 35BWW01-210513 **DATE/TIME:** 5/13/21 0721 **Pump Inlet Depth:** 16.11

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample | **Assoc. QC Samples** | **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow / Bladder Pump

Casing ID (in.): 4"

Purge Start Date/Time: 5/13/21 0730

Depth to Water - Initial (DTWi) (ft) 6.97

Purge End Date/Time: 5/13/21 0800

Depth to Well Bottom (ft) 20.81

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 11.11 - 21.11

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 16.11

Pump Start Time: 0730

Ferrous Iron (Required Y or (N) _____ mg/L

2ND DEPTH TO WATER - 6.97

APTIM

Sample Collection Log

Location ID: 35BWW01		Sample No: 35BWW01-210513								
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
5/13/21	0735	100	.5	7.04	0.124	16.65	5.51	23.9	231	0.77
	0740	100	1.0	7.10	0.118	16.61	4.93	23.5	252	0.35
	0745	100	1.5	7.13	0.114	16.62	4.66	23.8	253	0.25
	0750	100	2.0	7.15	0.113	16.61	4.65	24.0	254	0.24
	0755	100	2.5	7.17	0.113	16.60	4.64	24.2	255	0.23
	0800	100	3.0	7.18	0.113	16.60	4.63	24.5	255	0.23

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

01072705

Sample Collection Log

APTIM

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **35BWW04**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Cloudy

SAMPLING INFORMATION

Sample No: 35BWW04-210513 **DATE/TIME:** 5/13/21 11:11 **Pump Inlet Depth:** 27.85

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Anions (chloride/nitrate/sulfate) in Water by SW9056	1 x 125 mL HPDE	Cool 4C
		ALSHT	Carbon Dioxide in Water by RSK175	3 x 40 mL Glass	Cool 4C
		ALSHT	Dissolved Gases in Water by RSK175	3 x 40 mL Glass	HCL<pH2
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/Bladder Pump

Casing ID (in.): 4"

Purge Start Date/Time: 5/13/21 1120

Depth to Water - Initial (DTWi) (ft) 18.54

Purge End Date/Time: 5/13/21 1150

Depth to Well Bottom (ft) 33.31

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 22.85-32.85

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 27.85

Pump Start Time: 1120

Ferrous Iron (Required (Y) or N) 0.36 mg/L

2ND DEPTH TO WATER - 18.54

APTIM

Sample Collection Log

Location ID: 35BWW04		Sample No: 35BWW04-210513								
Date of Reading	**Time of Reading**	**Purge Rate**	**Total Purge**	**DTW**	**Cond.**	**Temp.**	**pH**	**Turbidity**	**ORP**	**DO**
		(ml/min)	**(L)**	**(ft)**	**(mS/cm)**	**(°C)**		**(NTU)**	**(mV)**	**(mg/L)**
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
5/13/21	1125	100	.5	18.60	0.290	19.34	6.87	0.7	170	4.21
	1130	100	1.0	18.64	0.294	18.09	6.73	0.0	180	4.02
	1135	100	1.5	18.67	0.295	18.00	6.56	0.0	189	3.95
	1140	100	2.0	18.69	0.296	17.93	6.55	0.0	190	3.93
	1145	100	2.5	18.70	0.296	17.87	6.55	0.0	191	3.90
✓	1150	100	3.0	18.70	0.296	17.84	6.54	0.0	191	3.88

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

Sample Collection Log

01072707

APTIM

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **35BWW05**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Cloudy

SAMPLING INFORMATION

Sample No: 35BWW05-210513 **DATE/TIME:** 5/13/21 0946 **Pump Inlet Depth:** 33.60

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/BLADDER Pump

Casing ID (in.): 2"

Purge Start Date/Time: 5/13/21 0955

Depth to Water - Initial (DTWi) (ft) 19.93

Purge End Date/Time: 5/13/21 1025

Depth to Well Bottom (ft) 38.00

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 28.60 - 38.60

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 33.60

Pump Start Time: 0955

Ferrous Iron (Required Y or (N)) _____ mg/L

2ND DEPTH TO WATER - 19.93

APTIM

Sample Collection Log

Location ID: 35BWW05		Sample No: 35BWW05-210513								
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
5/13/21	1000	100	.5	20.00	0.333	18.74	6.62	389	213	0.95
	1005	100	1.0	20.06	0.335	18.50	5.48	365	182	0.76
	1010	100	1.5	20.10	0.331	18.46	5.42	340	165	0.58
	1015	100	2.0	20.12	0.331	18.41	5.41	339	164	0.57
	1020	100	2.5	20.14	0.330	18.37	5.41	339	163	0.56
↓	1025	100	3.0	20.15	0.330	18.34	5.41	338	162	0.56

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

01072709

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **35BWW07**

Sampler(s): Scott Bessinger

FIELD CONDITIONS Cloudy

SAMPLING INFORMATION

Sample No: 35BWW07-210517 **DATE/TIME:** 5/17/21 0956 **Pump Inlet Depth:** 25.67

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/BLADDER Pump

Casing ID (in.): 2"

Purge Start Date/Time: 5/17/21 1000

Depth to Water - Initial (DTWi) (ft) 22.73

Purge End Date/Time: 5/17/21 1030

Depth to Well Bottom (ft) 31.41

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 20.67-30.67

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 25.67

Pump Start Time: 1000

Ferrous Iron (Required Y or (N) _____ mg/L

2ND DEPTH TO WATER- 22.73

01072710

APTIM

Sample Collection Log

Location ID: 35BWW07		Sample No: 35BWW07-210517								
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria 67.2		± 10% or 0.2 mg/L
5/17/21	1005	100	.5	22.80	0.630	20.86	6.91	[redacted]	[redacted]7	0.72
	1010	100	1.0	22.85	0.602	20.66	6.82	62.5	-36	0.38
	1015	100	1.5	22.89	0.588	20.58	6.75	58.9	-35	0.32
	1020	100	2.0	22.92	0.588	20.53	6.74	58.2	-35	0.31
	1025	100	2.5	22.94	0.587	20.49	6.74	57.7	-34	0.30
↓	1030	100	3.0	22.96	0.587	20.45	6.73	57.3	-34	0.30

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Location ID: **35BWW08**

Project No: **501032**

Sampler(s): Scott Bessinger

FIELD CONDITIONS

Cloudy

SAMPLING INFORMATION

Sample No: 35BWW08-210513 **DATE/TIME:** 5/13/21 0807 **Pump Inlet Depth:** 29.72

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample | **Assoc. QC Samples** | **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Anions (chloride/nitrate/sulfate) in Water by SW9056	1 x 125 mL HPDE	Cool 4C
		ALSHT	Carbon Dioxide in Water by RSK175	3 x 40 mL Glass	Cool 4C
		ALSHT	Dissolved Gases in Water by RSK175	3 x 40 mL Glass	HCL<pH2
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/BLADDER Pump

Casing ID (in.): 2"

Purge Start Date/Time: 5/13/21 0815

Depth to Water - Initial (DTWi) (ft) 20.95

Purge End Date/Time: 5/13/21 0845

Depth to Well Bottom (ft) 34.25

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 24.72 - 34.72

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 29.72

Pump Start Time: 0815

Ferrous Iron (Required (Y) or N) 0.74 mg/L

2ND DEPTH TO WATER - 20.95

01072712

APTIM

Sample Collection Log

Location ID: 35BWW08		Sample No: 35BWW08-210513								
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
5/13/21	0820	100	.5	21.02	0.236	17.42	5.75	27.3	183	2.31
	0825	100	1.0	21.08	0.249	17.59	5.37	20.1	231	2.10
	0830	100	1.5	21.12	0.256	17.65	5.21	16.2	260	1.94
	0835	100	2.0	21.15	0.256	17.74	5.20	15.8	261	1.92
	0840	100	2.5	21.17	0.257	17.83	5.20	15.4	262	1.90
↓	0845	100	3.0	21.19	0.257	17.89	5.19	15.0	263	1.88

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **35BWW08**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Cloudy

SAMPLING INFORMATION

Sample No: 35BWW08-210513-MS **DATE/TIME:** 5/13/21 0807 **Pump Inlet Depth:** 29.72

Sampling Method: LF **Sample Purpose:** MS **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Anions (chloride/nitrate/sulfate) in Water by SW9056	1 x 125 mL HPDE	Cool 4C
		ALSHT	Carbon Dioxide in Water by RSK175	3 x 40 mL Glass	Cool 4C
		ALSHT	Dissolved Gases in Water by RSK175	3 x 40 mL Glass	HCL<pH2
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/Bladder Pump

Casing ID (in.): 2"

Purge Start Date/Time: 5/13/21 0815

Depth to Water - Initial (DTWi) (ft) 20.95

Purge End Date/Time: 5/13/21 0845

Depth to Well Bottom (ft) 34.25

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 24.72-34.72

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 29.72

Pump Start Time: 0815

Ferrous Iron (Required (Y) or N) (SD) 0.74 mg/L

2ND Depth to water - 20.95

APTIM

Sample Collection Log

Location ID: 35BWW08		Sample No: 35BWW08-2105~~13~~-MS								
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
5/13/21	0820	100	.5	21.02	0.236	17.42	5.75	27.3	183	2.31
	0825	100	1.0	21.08	0.249	17.59	5.37	20.1	231	2.10
	0830	100	1.5	21.12	0.256	17.65	5.21	16.2	260	1.94
	0835	100	2.0	21.15	0.256	17.74	5.20	15.8	261	1.92
	0840	100	2.5	21.17	0.257	17.83	5.20	15.4	262	1.90
	0845	100	3.0	21.19	0.257	17.89	5.19	15.0	263	1.88

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP** Location ID: **35BWW08**

Project No: **501032** Sampler(s): Scott Beegle, NGAR

FIELD CONDITIONS Cloudy

SAMPLING INFORMATION

Sample No: 35BWW08-210513-MSD **DATE/TIME:** 5/13/21 0807 **Pump Inlet Depth:** 29.72

Sampling Method: LF **Sample Purpose:** MSD **Sample Matrix:** GW

Appearance of Sample | **Assoc. QC Samples** | **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Anions (chloride/nitrate/sulfate) in Water by SW9056	1 x 125 mL HPDE	Cool 4C
		ALSHT	Carbon Dioxide in Water by RSK175	3 x 40 mL Glass	Cool 4C
		ALSHT	Dissolved Gases in Water by RSK175	3 x 40 mL Glass	HCL<pH2
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low Flow/BLADDER Pump

Casing ID (in.): 2"

Purge Start Date/Time: 5/13/21 0815

Depth to Water - Initial (DTWi) (ft) 20.95

Purge End Date/Time: 5/13/21 0845

Depth to Well Bottom (ft) 34.25

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 24.72-34.72

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 29.72

Pump Start Time: 0815

Ferrous Iron (Required (Y) or N) 0.74 mg/L

2ND DEPTH TO WATER- 20.95

APTIM

Sample Collection Log

Location ID: 35BWW08		Sample No: 35BWW08-210513-MSD								
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
5/13/21	0820	100	.5	21.02	0.236	17.42	5.75	27.3	183	2.31
	0825	100	1.0	21.08	0.249	17.59	5.37	20.1	231	2.10
	0830	100	1.5	21.12	0.256	17.65	5.21	16.2	260	1.94
	0835	100	2.0	21.15	0.256	17.74	5.20	15.8	261	1.92
	0840	100	2.5	21.17	0.257	17.83	5.20	15.4	262	1.90
	0845	100	3.0	21.19	0.257	17.89	5.19	15.0	263	1.88

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

01072717

Sample Collection Log

APTIM

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **35BWW09**

Sampler(s): Scott Beesinger

FIELD CONDITIONS

Cloudy

SAMPLING INFORMATION

Sample No: 35BWW09-210517 **DATE/TIME:** 4/17/21 0702 **Pump Inlet Depth:** 32.01

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/Bladder Pump

Casing ID (in.): 4"

Purge Start Date/Time: 5/13/21 0710

Depth to Water - Initial (DTWi) (ft) 22.25

Purge End Date/Time: 5/13/21 0740

Depth to Well Bottom (ft) 37.10

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 27.01 - 37.01

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 32.01

Pump Start Time: 0710

Ferrous Iron (Required Y or (N) _____ mg/L

2ND Depth to water- 22.25

APTIM

Sample Collection Log

Location ID: 35BWW09				Sample No: 35BWW09-2105_17						
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
5/17/24	0715	100	.5	22.32	0.463	21.77	7.83	0.5	175	1.49
	0720	100	1.0	22.38	0.479	21.01	6.91	0.1	195	1.25
	0725	100	1.5	22.42	0.470	20.49	6.39	0.0	220	1.11
	0730	100	2.0	22.45	0.470	20.43	6.38	0.0	221	1.09
	0735	100	2.5	22.47	0.469	20.36	6.37	0.0	221	1.07
	0740	100	3.0	22.49	0.469	20.32	6.36	0.0	222	1.06

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **35BWW10**

Sampler(s): Scott Beesinger

FIELD CONDITIONS

Cloudy

SAMPLING INFORMATION

Sample No: 35BWW10-210513 **DATE/TIME:** 5/13/21 0904 **Pump Inlet Depth:** 28.62

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample | **Assoc. QC Samples** | **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/Bladder Pump

Casing ID (in.): 2"

Purge Start Date/Time: 5/13/21 0910

Depth to Water - Initial (DTWi) (ft) 20.45

Purge End Date/Time: 5/13/21 0940

Depth to Well Bottom (ft) 36.37

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 21.23-36.00

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 28.62

Pump Start Time: 0910

Ferrous Iron (Required Y or (N) _____ mg/L

2ND Depth to water- 20.45

APTIM

Sample Collection Log

Location ID: 35BWW10		Sample No: 35BWW10-2105 13								
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
5/13/21	0915	100	.5	20.53	0.225	18.29	6.48	188	211	1.55
	0920	100	1.0	20.59	0.219	18.50	5.53	174	220	1.36
	0925	100	1.5	20.63	0.216	18.58	5.50	169	243	1.23
	0930	100	2.0	20.66	0.215	18.63	5.49	168	244	1.21
	0935	100	2.5	20.68	0.215	18.68	5.49	167	244	1.19
	0940	100	3.0	20.70	0.215	18.71	5.49	167	245	1.17

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP** Location ID: **35BWW11**

Project No: **501032** Sampler(s): Scott Baggenger

FIELD CONDITIONS Cloudy

SAMPLING INFORMATION

Sample No: 35BWW11-2105_17 **DATE/TIME:** 5/17/21 0746 **Pump Inlet Depth:** 32.16

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing Purging Method/Equipment: Low flow / BLADDER Pump

Casing ID (in.): 4" Purge Start Date/Time: 5/17/21 0750

Depth to Water - Initial (DTWi) (ft) 18.22 Purge End Date/Time: 5/17/21 0820

Depth to Well Bottom (ft) 37.71 Discharge Tube Length: NA PID Reading: NA

37.41 ft btoc

Screen Interval (ft): 27.41 - ~~36.41~~ Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

L George 07/15/2021

Approximate depth of pump inlet*(ft): 32.16 Pump Start Time: 0750

Ferrous Iron (Required Y or (N) _____ mg/L

2ND Depth to water - 18.22

APTIM

Sample Collection Log

Location ID: 35BWW11		Sample No: 35BWW11-210517								
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
5/17/21	0755	100	.5	18.30	0.383	20.93	6.58	0.8	217	0.80
	0800	100	1.0	18.36	0.382	20.75	5.49	0.2	253	0.29
	0805	100	1.5	18.40	0.384	20.72	5.28	0.0	263	0.16
	0810	100	2.0	18.42	0.385	20.69	5.28	0.0	264	0.16
	0815	100	2.5	18.43	0.385	20.65	5.27	0.0	265	0.15
↓	0820	100	3.0	18.43	0.385	20.63	5.26	0.0	266	0.15

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **35BWW12**

Sampler(s): Scott Beggs, Nick

FIELD CONDITIONS Cloudy

SAMPLING INFORMATION

Sample No: 35BWW12-210518 **DATE/TIME:** 5/18/21 0700 **Pump Inlet Depth:** 30.30

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Anions (chloride/nitrate/sulfate) in Water by SW9056	1 x 125 mL HPDE	Cool 4C
		ALSHT	Carbon Dioxide in Water by RSK175	3 x 40 mL Glass	Cool 4C
		ALSHT	Dissolved Gases in Water by RSK175	3 x 40 mL Glass	HCL<pH2
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low Flow/Bladder Pump

Casing ID (in.): 2"

Purge Start Date/Time: 5/18/21 0710

Depth to Water - Initial (DTWi) (ft) 17.32

Purge End Date/Time: 5/18/21 0740

Depth to Well Bottom (ft) 38.23

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 22.95 - 37.65

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 30.30

Pump Start Time: 0710

Ferrous Iron (Required (Y) or N) 1.22 mg/L

2ND Depth to water - 17.32

APTIM

Sample Collection Log

Location ID: 35BWW12					Sample No: 35BWW12-210518					
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
5/18/21	0715	100	.5	17.40	0.294	20.10	6.51	175	268	0.89
	0720	100	1.0	17.45	0.308	19.01	6.02	158	242	0.57
	0725	100	1.5	17.49	0.317	18.45	5.60	144	230	0.45
	0730	100	2.0	17.51	0.318	18.37	5.59	143	229	0.44
	0735	100	2.5	17.53	0.318	18.29	5.58	142	229	0.43
↓	0740	100	3.0	17.54	0.318	18.22	5.57	141	228	0.42

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **35BWW12**

Sampler(s): Scott Bessinger

FIELD CONDITIONS Cloudy

SAMPLING INFORMATION

Sample No: 35BWW12-210518-FD **DATE/TIME:** 5/18/21 0700 **Pump Inlet Depth:** 30.30

Sampling Method: LF **Sample Purpose:** FD **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Anions (chloride/nitrate/sulfate) in Water by SW9056	1 x 125 mL HPDE	Cool 4C
		ALSHT	Carbon Dioxide in Water by RSK175	3 x 40 mL Glass	Cool 4C
		ALSHT	Dissolved Gases in Water by RSK175	3 x 40 mL Glass	HCL<pH2
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low Flow/Bladder Pump

Casing ID (in.): 2"

Purge Start Date/Time: 5/18/21 0710

Depth to Water - Initial (DTWi) (ft) 17.32

Purge End Date/Time: 5/18/21 0740

Depth to Well Bottom (ft) 38.23

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 22.95 - 37.65

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 30.30

Pump Start Time: 0710

Ferrous Iron (Required (Y) or N) _____ mg/L

2ND Depth To Water - 17.32

APTIM

Sample Collection Log

Location ID: 35BWW12				Sample No: 35BWW12-2105_18_-FD						
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
5/18/21	0715	100	.5	17.40	0.294	20.10	6.51	175	268	0.89
	0720	100	1.0	17.45	0.308	19.01	6.02	158	242	0.57
	0725	100	1.5	17.49	0.317	18.45	5.60	144	230	0.45
	0730	100	2.0	17.51	0.318	18.37	5.59	143	229	0.44
	0735	100	2.5	17.53	0.318	18.29	5.58	142	229	0.43
↓	0740	100	3.0	17.54	0.318	18.22	5.57	141	228	0.42

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **35BWW13**

Sampler(s): Scott Bassinger

FIELD CONDITIONS Cloudy / Light Rain

SAMPLING INFORMATION

Sample No: 35BWW13-210517 **DATE/TIME:** 5/17/21 1117 **Pump Inlet Depth:** 29.60

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow / Bladder Pump

Casing ID (in.): 2"

Purge Start Date/Time: 5/17/21 1125

Depth to Water - Initial (DTWi) (ft) 19.80

Purge End Date/Time: 5/17/21 1155

Depth to Well Bottom (ft) 37.68

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 22.25 - 36.95

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 29.60

Pump Start Time: 1125

Ferrous Iron (Required Y or (N) _____ mg/L

2ND DEPTH TO WATER - 19.80

APTIM

Sample Collection Log

Location ID: 35BWW13				Sample No: 35BWW13-210517						
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
5/17/21	1130	100	.5	19.87	0.218	20.65	5.35	221	239	0.89
	1135	100	1.0	19.93	0.210	18.79	4.45	209	295	0.50
	1140	100	1.5	19.97	0.208	18.38	4.33	206	320	0.38
	1145	100	2.0	19.99	0.207	18.33	4.32	205	321	0.37
	1150	100	2.5	20.01	0.207	18.27	4.31	204	322	0.37
	1155	100	3.0	20.02	0.207	18.24	4.31	203	323	0.36

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **35BWW14**

Sampler(s): Scott Baggenger

FIELD CONDITIONS

Cloudy

SAMPLING INFORMATION

Sample No: 35BWW14-210518 **DATE/TIME:** 5/18/21 0841 **Pump Inlet Depth:** 31.71

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample **Assoc. QC Samples** **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Anions (chloride/nitrate/sulfate) in Water by SW9056	1 x 125 mL HPDE	Cool 4C
		ALSHT	Carbon Dioxide in Water by RSK175	3 x 40 mL Glass	Cool 4C
		ALSHT	Dissolved Gases in Water by RSK175	3 x 40 mL Glass	HCL<pH2
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/Bladder Pump

Casing ID (in.): 4"

Purge Start Date/Time: 5/18/21 0850

Depth to Water - Initial (DTWi) (ft) 18.74

Purge End Date/Time: 5/18/21 0920

Depth to Well Bottom (ft) 37.33

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 26.71 - 36.71

Discharge Tube Diameter: 1/4" Immersible Layer: Y / N

Approximate depth of pump inlet*(ft): 31.71

Pump Start Time: 0850

Ferrous Iron (Required Y or N) 0.16 mg/L

2ND Depth to water - 18.74

APTIM

Sample Collection Log

Location ID: 35BWW14				Sample No: 35BWW14-210518						
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
5/18/21	0855	100	.5	18.82	0.445	19.08	6.41	0.3	239	0.83
	0900	100	1.0	18.88	0.450	18.76	5.91	0.0	247	0.55
	0905	100	1.5	18.91	0.450	18.73	5.76	0.0	255	0.50
	0910	100	2.0	18.94	0.451	18.70	5.76	0.0	256	0.49
	0915	100	2.5	18.96	0.451	18.67	5.75	0.0	255	0.49
	0920	100	3.0	18.97	0.451	18.65	5.74	0.0	257	0.48

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **35BWW15**

Sampler(s): Scott Baginger

FIELD CONDITIONS Cloudy

SAMPLING INFORMATION

Sample No: 35BWW15-210518 **DATE/TIME:** 5/18/21 0929 **Pump Inlet Depth:** 34.34

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/BLADDER Pump

Casing ID (in.): 2"

Purge Start Date/Time: 5/18/21 0935

Depth to Water - Initial (DTWi) (ft) 19.65

Purge End Date/Time: 5/18/21 1005

Depth to Well Bottom (ft) 50.13

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 19.34 - 49.34

Discharge Tube Diameter: 1/4" Immersible Layer: Y (N)

Approximate depth of pump inlet*(ft): 34.34

Pump Start Time: 0935

Ferrous Iron (Required Y or (N) _____ mg/L

2ND DEPTH TO WATER - 19.65

APTIM

Sample Collection Log

Location ID: 35BWW15					Sample No: 35BWW15-210518					
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
5/18/21	0940	100	.5	19.72	0.496	19.84	6.90	82.5	221	1.08
	0945	100	1.0	19.78	0.499	19.67	6.25	73.8	232	0.86
	0950	100	1.5	19.81	0.504	19.60	5.95	70.6	235	0.68
	0955	100	2.0	19.83	0.505	19.53	5.94	70.1	235	0.67
	1000	100	2.5	19.84	0.505	19.49	5.93	69.7	236	0.67
↓	1005	100	3.0	19.85	0.505	19.46	5.92	69.2	236	0.66

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **35BWW16**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Cloudy

SAMPLING INFORMATION

Sample No: 35BWW16-210518 **DATE/TIME:** 5/18/21 1051 **Pump Inlet Depth:** 29.01

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample | **Assoc. QC Samples** | **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/BLADDER Pump

Casing ID (in.): 2"

Purge Start Date/Time: 5/18/21 1100

Depth to Water - Initial (DTWi) (ft) 19.32

Purge End Date/Time: 5/18/21 1130

Depth to Well Bottom (ft) 36.90

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 21.66 - 36.36

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 29.01

Pump Start Time: 1100

Ferrous Iron (Required Y or (N) _____ mg/L

2ND DEPTH TO WATER- 19.32

APTIM

Sample Collection Log

Location ID: 35BWW16				Sample No: 35BWW16-210518						
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
5/18/21	1105	100	.5	19.40	0.253	21.09	5.58	199	262	0.80
	1110	100	1.0	19.45	0.257	21.50	5.10	178	283	0.44
	1115	100	1.5	19.48	0.257	21.75	5.00	167	286	0.25
	1120	100	2.0	19.50	0.258	21.84	5.00	166	287	0.24
	1125	100	2.5	19.52	0.258	21.89	4.99	165	287	0.24
	1130	100	3.0	19.53	0.258	21.93	4.99	165	287	0.23

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **35BWW17**

Sampler(s): Scott Baggenger

FIELD CONDITIONS

Cloudy

SAMPLING INFORMATION

Sample No: 35BWW17-2105'18 **DATE/TIME:** 5/18/21 1011 **Pump Inlet Depth:** 28.49

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample | **Assoc. QC Samples** | **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Casing ID (in.): 2"

Depth to Water - Initial (DTWi) (ft) 17.32

Depth to Well Bottom (ft) 36.20

Screen Interval (ft): 21.14-35.84

Approximate depth of pump inlet*(ft): 28.49

Ferrous Iron (Required Y or (N)) _____ mg/L

Purging Method/Equipment: Low Flow/Bladder Pump

Purge Start Date/Time: 5/18/21 1015

Purge End Date/Time: 5/18/21 1045

Discharge Tube Length: NA PID Reading: NA

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Pump Start Time: 1015

2ND DEPTH TO WATER - 17.32

APTIM

Sample Collection Log

Location ID: 35BWW17		Sample No: 35BWW17-210518								
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
5/18/21	1020	100	.5	17.39	0.079	19.74	5.89	302	224	0.88
	1025	100	1.0	17.45	0.068	18.50	4.87	278	310	0.51
	1030	100	1.5	17.48	0.064	18.38	4.60	271	345	0.35
	1035	100	2.0	17.50	0.064	18.32	4.59	270	346	0.34
	1040	100	2.5	17.51	0.064	18.27	4.59	269	347	0.33
↓	1045	100	3.0	17.52	0.064	18.22	4.58	268	348	0.33

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **35BWW17**

Sampler(s): Scott Bessinger

FIELD CONDITIONS Cloudy

SAMPLING INFORMATION

Sample No: 35BWW17-210518-FD **DATE/TIME:** 5/18/21 1011 **Pump Inlet Depth:** 28.44

Sampling Method: LF **Sample Purpose:** FD **Sample Matrix:** GW

Appearance of Sample | **Assoc. QC Samples** | **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/BLADDER Pump

Casing ID (in.): 2"

Purge Start Date/Time: 5/18/21 1015

Depth to Water - Initial (DTWi) (ft) 17.32

Purge End Date/Time: 5/18/21 1045

Depth to Well Bottom (ft) 36.20

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 21.14-35.84

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 28.44

Pump Start Time: 1015

Ferrous Iron (Required Y or (N)) _____ mg/L

2ND DEPTH TO WATER- 17.32

APTIM

Sample Collection Log

Location ID: 35BWW17		Sample No: 35BWW17-210518-FD								
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
5/18/21	1020	100	.5	17.39	0.079	19.74	5.89	302	224	0.88
	1025	100	1.0	17.45	0.068	18.50	4.87	278	310	0.51
	1030	100	1.5	17.48	0.064	18.38	4.60	271	345	0.35
	1035	100	2.0	17.50	0.064	18.32	4.59	270	346	0.34
	1040	100	2.5	17.51	0.064	18.27	4.59	269	347	0.33
↓	1045	100	3.0	17.52	0.064	18.22	4.58	268	348	0.33

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP** Location ID: **35BWW18**

Project No: **501032** Sampler(s): Scott Beesinger

FIELD CONDITIONS Cloudy

SAMPLING INFORMATION

Sample No: 35BWW18-210518 **DATE/TIME:** 5/18/21 1221 **Pump Inlet Depth:** 28.06

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample **Assoc. QC Samples** **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing Purging Method/Equipment: Low Flow/Bladder Pump

Casing ID (in.): 2" Purge Start Date/Time: 5/ /21 1230

Depth to Water - Initial (DTWi) (ft) 24.20 Purge End Date/Time: 5/ /21 1300

Depth to Well Bottom (ft) 35.49 Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 20.69-35.42 Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 28.06 Pump Start Time: 1230

Ferrous Iron (Required Y or (N) _____ mg/L

2ND Depth to water-24.20

APTIM

Sample Collection Log

Location ID: 35BWW18		Sample No: 35BWW18-210518								
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
5/18/21	1235	100	.5	24.27	1.95	21.33	6.82	12.6	133	0.98
	1240	100	1.0	24.33	2.05	21.02	6.59	9.2	154	0.53
	1245	100	1.5	24.37	2.16	20.88	6.47	7.7	161	0.37
	1250	100	2.0	24.39	2.16	20.84	6.46	7.0	162	0.36
	1255	100	2.5	24.41	2.17	20.79	6.46	6.5	163	0.36
↓	1300	100	3.0	24.42	2.17	20.75	6.45	5.9	163	0.35

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **35BWW19**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Cloudy

SAMPLING INFORMATION

Sample No: 35BWW19-210518 **DATE/TIME:** 5/18/21 1138 **Pump Inlet Depth:** 28.68

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample | **Assoc. QC Samples** | **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/BLADDER Pump

Casing ID (in.): 2"

Purge Start Date/Time: 5/18/21 1145

Depth to Water - Initial (DTWi) (ft) 24.22

Purge End Date/Time: 5/18/21 1215

Depth to Well Bottom (ft) 36.62

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 21.31 - 36.04

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 28.68

Pump Start Time: 1145

Ferrous Iron (Required Y or (N) _____ mg/L

2ND DEPTH TO WATER - 24.22

APTIM

Sample Collection Log

Location ID: 35BWW19		Sample No: 35BWW19-210518								
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
5/18/21	1150	100	.5	24.30	2.47	22.90	6.46	149	227	0.91
	1155	100	1.0	24.36	2.60	22.00	6.61	124	212	0.56
	1200	100	1.5	24.40	2.68	21.60	6.75	103	201	0.52
	1205	100	2.0	24.42	2.69	21.53	6.76	102	200	0.52
	1210	100	2.5	24.44	2.70	21.47	6.77	102	199	0.51
	1215	100	3.0	24.45	2.70	21.42	6.77	101	199	0.51

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **35BWW20**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Cloudy

SAMPLING INFORMATION

Sample No: 35BWW20-210513 **DATE/TIME:** 5/13/21 1204 **Pump Inlet Depth:** 25.08

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/BLADDER Pump

Casing ID (in.): 2"

Purge Start Date/Time: 5/13/21 1210

Depth to Water - Initial (DTWi) (ft) 21.57

Purge End Date/Time: 5/13/21 1240

Depth to Well Bottom (ft) 32.95

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 17.70-32.46

Discharge Tube Diameter: 1/4"

Immersible Layer: Y (N)

Approximate depth of pump inlet*(ft): 25.08

Pump Start Time: 1210

Ferrous Iron (Required Y or (N) _____ mg/L

2ND DEPTH TO WATER-21.57

APTIM

Sample Collection Log

Location ID: 35BWW20				Sample No: 35BWW20-210513						
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
5/13/21	1215	100	.5	21.65	0.294	22.61	6.56	203	172	1.08
↓	1220	100	1.0	21.71	0.280	23.59	5.23	182	231	0.93
	1225	100	1.5	21.75	0.268	23.69	5.24	176	243	0.87
	1230	100	2.0	21.78	0.268	23.76	5.25	175	244	0.87
	1235	100	2.5	21.80	0.267	23.81	5.26	175	245	0.86
↓	1240	100	3.0	21.82	0.267	23.88	5.27	174	245	0.85

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **35BWW23**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Cloudy

SAMPLING INFORMATION

Sample No: 35BWW23-210518 **DATE/TIME:** 5/18/21 0756 **Pump Inlet Depth:** 27.63

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample | **Assoc. QC Samples** | **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Anions (chloride/nitrate/sulfate) in Water by SW9056	1 x 125 mL HPDE	Cool 4C
		ALSHT	Carbon Dioxide in Water by RSK175	3 x 40 mL Glass	Cool 4C
		ALSHT	Dissolved Gases in Water by RSK175	3 x 40 mL Glass	HCL<pH2
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/Bladder Pump

Casing ID (in.): 4"

Purge Start Date/Time: 5/18/21 0800

Depth to Water - Initial (DTWi) (ft) 25.93

Purge End Date/Time: 5/18/21 0830

Depth to Well Bottom (ft) 33.65

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 22.63 - 32.63

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 27.63

Pump Start Time: 0800

Ferrous Iron (Required (Y) or N) 0.45 mg/L

2ND DEPTH TO WATER - 25.93

APTIM

Sample Collection Log

Location ID: 35BWW23		Sample No: 35BWW23-210518								
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
5/18/21	0805	100	.5	26.00	0.434	19.27	6.81	2.0	205	1.03
	0810	100	1.0	26.06	0.442	19.03	5.70	0.5	245	0.80
	0815	100	1.5	26.10	0.448	18.90	5.35	0.0	268	0.69
	0820	100	2.0	26.12	0.448	18.86	5.34	0.0	269	0.68
	0825	100	2.5	26.14	0.449	18.81	5.33	0.0	270	0.68
↓	0830	100	3.0	26.16	0.449	18.76	5.32	0.0	271	0.67

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **35BWW24**

Sampler(s): Scott Bessinger

FIELD CONDITIONS Cloudy

SAMPLING INFORMATION

Sample No: 35BWW24-210517 **DATE/TIME:** 5/17/21 0913 **Pump Inlet Depth:** 27.57

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample | **Assoc. QC Samples** | **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low Flow/Bladder Pump

Casing ID (in.): 4"

Purge Start Date/Time: 5/17/21 0920

Depth to Water - Initial (DTWi) (ft) 26.82

Purge End Date/Time: 5/17/21 0950

Depth to Well Bottom (ft) 32.175

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 22.72 - 32.42

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 27.57

Pump Start Time: 0920

Ferrous Iron (Required Y or (N) _____ mg/L

2ND DEPTH TO WATER - 26.82

APTIM

Sample Collection Log

Location ID: 35BWW24					Sample No: 35BWW24-210517					
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
5/17/21	0925	100	.5	26.90	1.33	20.32	6.71	0.0	237	1.49
	0930	100	1.0	26.96	1.36	19.49	5.80	0.0	252	1.22
	0935	100	1.5	27.00	1.38	19.50	5.68	0.0	260	1.11
	0940	100	2.0	27.03	1.38	19.51	5.68	0.0	260	1.09
	0945	100	2.5	27.06	1.38	19.52	5.67	0.0	261	1.07
↓	0950	100	3.0	27.08	1.38	19.52	5.66	0.0	261	1.06

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **35BWW24**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Cloudy

SAMPLING INFORMATION

Sample No: 35BWW24-210517-FD **DATE/TIME:** 5/17/21 0913 **Pump Inlet Depth:** 27.57

Sampling Method: LF **Sample Purpose:** FD **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low Flow/Bladder Pump

Casing ID (in.): 4"

Purge Start Date/Time: 5/17/21 0920

Depth to Water - Initial (DTWi) (ft) 26.82

Purge End Date/Time: 5/17/21 0950

Depth to Well Bottom (ft) 32.75

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 22.72-32.42

Discharge Tube Diameter: 1/4" Immersible Layer: Y / N

Approximate depth of pump inlet*(ft): 27.57

Pump Start Time: 0920

Ferrous Iron (Required Y or N) _____ mg/L

2ND Depth to water- 26.82

APTIM

Sample Collection Log

Location ID: 35BWW24		Sample No: 35BWW24-210517-FD								
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
5/17/21	0925	100	.5	26.90	1.33	20.32	6.71	0.0	237	1.49
	0930	100	1.0	26.96	1.36	19.49	5.80	0.0	252	1.22
	0935	100	1.5	27.00	1.38	19.50	5.68	0.0	260	1.11
	0940	100	2.0	27.03	1.38	19.51	5.68	0.0	260	1.09
	0945	100	2.5	27.06	1.38	19.52	5.67	0.0	261	1.07
↓	0950	100	3.0	27.08	1.38	19.52	5.66	0.0	261	1.06

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **35BWW25**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Cloudy

SAMPLING INFORMATION

Sample No: 35BWW25-210517 **DATE/TIME:** 4/17/21 0828 **Pump Inlet Depth:** 27.32

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/BLADDER Pump

Casing ID (in.): 4"

Purge Start Date/Time: 5/17/21 0835

Depth to Water - Initial (DTWi) (ft) 24.38

Purge End Date/Time: 5/17/21 0905

Depth to Well Bottom (ft) 32.55

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 22.47-32.17

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 27.32

Pump Start Time: 0835

Ferrous Iron (Required Y or (N)) _____ mg/L

2ND Depth TO WATER - 24.38

APTIM

Sample Collection Log

Location ID: 35BWW25				Sample No: 35BWW25-210517						
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
5/17/21	0840	100	.5	24.45	0.750	20.67	6.58	0.2	229	1.77
	0845	100	1.0	24.51	0.780	20.05	5.96	0.0	239	1.50
	0850	100	1.5	24.55	0.798	19.75	5.58	0.0	257	1.36
	0855	100	2.0	24.57	0.797	19.66	5.57	0.0	258	1.34
	0900	100	2.5	24.59	0.797	19.58	5.57	0.0	259	1.32
↓	0905	100	3.0	24.61	0.797	19.53	5.56	0.0	259	1.31

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **35BWW25**

Sampler(s): Scott Baessinger

FIELD CONDITIONS Cloudy

SAMPLING INFORMATION

Sample No: 35BWW25-210517-MS **DATE/TIME:** 4/17/21 0828 **Pump Inlet Depth:** 27.32

Sampling Method: LF **Sample Purpose:** MS **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/BLADDER Pump

Casing ID (in.): 4"

Purge Start Date/Time: 5/17/21 0835

Depth to Water - Initial (DTWi) (ft) 24.38

Purge End Date/Time: 5/17/21 0905

Depth to Well Bottom (ft) 32.55

Discharge Tube Length: NA

PID Reading: NA

Screen Interval (ft): 22.47 - 32.17

Discharge Tube Diameter: 1/4"

Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 27.32

Pump Start Time: 0835

Ferrous Iron (Required Y or (N) _____ mg/L

2ND DEPTH TO WATER 24.38

APTIM

Sample Collection Log

Location ID: 35BWW25 Sample No: 35BWW25-210517-MS

Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
5/17/21	0840	100	.5	24.45	0.750	20.67	6.58	0.2	229	1.77
	0845	100	1.0	24.51	0.780	20.05	5.96	0.0	239	1.50
	0850	100	1.5	24.55	0.798	19.75	5.58	0.0	257	1.36
	0855	100	2.0	24.57	0.797	19.66	5.57	0.0	258	1.34
	0900	100	2.5	24.59	0.797	19.58	5.57	0.0	259	1.32
↓	0905	100	3.0	24.61	0.797	19.53	5.56	0.0	259	1.31

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **35BWW25**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Cloudy

SAMPLING INFORMATION

Sample No: 35BWW25-210517-MSD **DATE/TIME:** 5/17/21 0828 **Pump Inlet Depth:** 27.32

Sampling Method: LF **Sample Purpose:** MSD **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow/Bladder Pump

Casing ID (in.): 4"

Purge Start Date/Time: 5/17/21 0835

Depth to Water - Initial (DTWi) (ft) 24.38

Purge End Date/Time: 5/17/21 0905

Depth to Well Bottom (ft) 32.55

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 22.47 - 32.17

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 27.32

Pump Start Time: 0835

Ferrous Iron (Required Y or (N) _____ mg/L

2ND DEPTH TO WATER - 24.38

APTIM

Sample Collection Log

Location ID: 35BWW25		Sample No: 35BWW25-2105 17 -MSD								
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
5/17/21	0840	100	.5	24.45	0.750	20.67	6.58	0.2	229	1.77
	0845	100	1.0	24.51	0.780	20.05	5.96	0.0	239	1.50
	0850	100	1.5	24.55	0.798	19.75	5.58	0.0	257	1.36
	0855	100	2.0	24.57	0.797	19.66	5.57	0.0	258	1.34
	0900	100	2.5	24.59	0.797	19.58	5.57	0.0	259	1.32
↓	0905	100	3.0	24.61	0.797	19.53	5.56	0.0	259	1.31

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **35BWW26**

Sampler(s): Scott Beesinger

FIELD CONDITIONS

Cloudy

SAMPLING INFORMATION

Sample No: 35BWW26-210513 **DATE/TIME:** 4/13/21 0632 **Pump Inlet Depth:** 32.50

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample | **Assoc. QC Samples** | **Decontamination Procedures**

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	Anions (chloride/nitrate/sulfate) in Water by SW9056	1 x 125 mL HPDE	Cool 4C
		ALSHT	Carbon Dioxide in Water by RSK175	3 x 40 mL Glass	Cool 4C
		ALSHT	Dissolved Gases in Water by RSK175	3 x 40 mL Glass	HCL<pH2
		ALSHT	TOC in Water by SM5310C	2 x 40 mL Amber	H2SO4
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low Flow/Bladder Pump

Casing ID (in.): 4"

Purge Start Date/Time: 4/13/21 0640

Depth to Water - Initial (DTWi) (ft) 25.50

Purge End Date/Time: 4/13/21 0710

Depth to Well Bottom (ft) 38.00

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 27.65-37.35

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 32.50

Pump Start Time: 0640

Ferrous Iron (Required (Y) or N) 0.53 mg/L

2ND DEPTH TO WATER-25.50

APTIM

Sample Collection Log

Location ID: 35BWW26		Sample No: 35BWW26-2105[illegible]								
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
5/13/21	0645	100	.5	25.57	0.400	17.45	6.36	0.8	193	1.68
	0650	100	1.0	25.63	0.337	17.75	5.65	0.0	231	1.46
	0655	100	1.5	25.67	0.297	17.91	5.36	0.0	250	1.30
	0700	100	2.0	25.69	0.297	17.97	5.35	0.0	251	1.28
	0705	100	2.5	25.71	0.296	18.02	5.35	0.0	252	1.26
	0710	100	3.0	25.73	0.296	18.08	5.34	0.0	252	1.25

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

APTIM

Sample Collection Log

Project Name: **Longhorn AAP**

Project No: **501032**

Location ID: **LHSMW58**

Sampler(s): Scott Beesinger

FIELD CONDITIONS Cloudy

SAMPLING INFORMATION

Sample No: LHSMW58-2105.13 **DATE/TIME:** 5/13/21 1031 **Pump Inlet Depth:** 29.18

Sampling Method: LF **Sample Purpose:** REG **Sample Matrix:** GW

Appearance of Sample	Assoc. QC Samples	Decontamination Procedures

Chain of Custody	COC Notes	Lab	Analyses	Container	Preserv
		ALSHT	VOCs in Water by 8260B	3 x 40 mL Glass	HCL<pH2

WELL AND PURGING INFORMATION

Measuring Point : Top of Casing

Purging Method/Equipment: Low flow / Bladder Pump

Casing ID (in.): 4"

Purge Start Date/Time: 5/13/21 1035

Depth to Water - Initial (DTWi) (ft) 19.68

Purge End Date/Time: 5/13/21 1105

Depth to Well Bottom (ft) 34.17

Discharge Tube Length: NA PID Reading: NA

Screen Interval (ft): 24.18 - 34.18

Discharge Tube Diameter: 1/4" Immersible Layer: Y / (N)

Approximate depth of pump inlet*(ft): 29.18

Pump Start Time: 1035

Ferrous Iron (Required Y or (N) _____ mg/L

2ND DEPTH TO WATER - 19.68

APTIM

Sample Collection Log

Location ID: LHSMW58				Sample No: LHSMW58-210513						
Date of Reading	Time of Reading	Purge Rate	Total Purge	DTW	Cond.	Temp.	pH	Turbidity	ORP	DO
		(ml/min)	(L)	(ft)	(mS/cm)	(°C)		(NTU)	(mV)	(mg/L)
	Purge Stabilization Criteria	-	-	Drawdown limit 0.3 ft	±10%		±0.1 units	No criteria		± 10% or 0.2 mg/L
5/13/21	1040	100	.5	19.75	0.238	19.73	6.37	0.5	154	2.21
	1045	100	1.0	19.81	0.233	19.35	6.05	0.0	176	1.99
	1050	100	1.5	19.85	0.233	19.32	5.90	0.0	191	1.86
	1055	100	2.0	19.87	0.233	19.28	5.89	0.0	192	1.84
	1100	100	2.5	19.89	0.233	19.25	5.89	0.0	193	1.82
	1105	100	3.0	19.90	0.233	19.21	5.88	0.0	194	1.80

Logged by: _____ Date: _____

QC'd by: _____ Date: _____

Appendix C

Laboratory Analytical Data Package

(Provided electronically on CD and the Portal)

Appendix D

Photographic Log and Well Inspection Forms

PHOTO LOG

Photo No.	Date	Task and Description
1	11-11-2020	35BWW01
2	11-11-2020	35BWW04
3	11-11-2020	35BWW05
4	11-11-2020	35BWW07
5	11-11-2020	35BWW08
6	11-11-2020	35BWW09
7	11-11-2020	35BWW10
8	11-11-2020	35BWW11
9	11-11-2020	35BWW12
10	11-11-2020	35BWW13
11	11-11-2020	35BWW14
12	11-11-2020	35BWW15
13	11-11-2020	35BWW16
14	11-11-2020	35BWW17
15	11-11-2020	35BWW18
16	11-11-2020	35BWW19
17	11-11-2020	35BWW20
18	11-11-2020	35BWW23
19	11-11-2020	35BWW24
20	11-11-2020	35BWW25
21	11-11-2020	35BWW26
22	11-11-2020	LHSMW58
23	5-25-2021	35BWW01
24	5-25-2021	35BWW04
25	5-25-2021	35BWW05
26	5-25-2021	35BWW07
27	5-25-2021	35BWW08
28	5-25-2021	35BWW09
29	5-25-2021	35BWW10
30	5-25-2021	35BWW11
31	5-25-2021	35BWW12

Photo No.	Date	Task and Description
32	5-25-2021	35BWW13
33	5-25-2021	35BWW14
34	5-25-2021	35BWW15
35	5-25-2021	35BWW16
36	5-25-2021	35BWW17
37	5-25-2021	35BWW18
38	5-25-2021	35BWW19
39	5-25-2021	35BWW20
40	5-25-2021	35BWW23
41	5-25-2021	35BWW24
42	5-25-2021	35BWW25
43	5-25-2021	35BWW26
44	5-25-2021	LHSMW58

PHOTO 1: 35BWW01
DATE: November 11, 2020

PHOTO 2: 35BWW04
DATE: November 11, 2020

PHOTO 3: 35BWW05
DATE: November 11, 2020

PHOTO 4: 35BWW07
DATE: November 11, 2020

PHOTO 5: 35BWW08
DATE: November 11, 2020

PHOTO 6: 35BWW09
DATE: November 11, 2020

PHOTO 7: 35BWW10
DATE: November 11, 2020

PHOTO 8: 35BWW11
DATE: November 11, 2020

PHOTO 9: 35BWW12
DATE: November 11, 2020

PHOTO 10: 35BWW13
DATE: November 11, 2020

PHOTO 11: 35BWW14
DATE: November 11, 2020

PHOTO 12: 35BWW15
DATE: November 11, 2020

PHOTO 13: 35BWW16
DATE: November 11, 2020

PHOTO 14: 35BWW17
DATE: November 11, 2020

PHOTO 15: 35BWW18
DATE: November 11, 2020

PHOTO 16: 35BWW19
DATE: November 11, 2020

PHOTO 17: 35BWW20
DATE: November 11, 2020

PHOTO 18: 35BWW23
DATE: November 11, 2020

PHOTO 19: 35BWW24
DATE: November 11, 2020

PHOTO 20: 35BWW25
DATE: November 11, 2020

PHOTO 21: 35BWW26
DATE: November 11, 2020

PHOTO 22: LHSMW58
DATE: November 11, 2020

PHOTO 23: 35BWW01
DATE: May 25, 2021

PHOTO 24: 35BWW04
DATE: May 25, 2021

PHOTO 25: 35BWW05
DATE: May 25, 2021

PHOTO 26: 35BWW07
DATE: May 25, 2021

PHOTO 27: 35BWW08
DATE: May 25, 2021

PHOTO 28: 35BWW09
DATE: May 25, 2021

PHOTO 29: 35BWW10
DATE: May 25, 2021

PHOTO 30: 35BWW11
DATE: May 25, 2021

PHOTO 31: 35BWW12
DATE: May 25, 2021

PHOTO 32: 35BWW13
DATE: May 25, 2021

PHOTO 33: 35BWW14
DATE: May 25, 2021

PHOTO 34: 35BWW15
DATE: May 25, 2021

PHOTO 35: 35BWW16
DATE: May 25, 2021

PHOTO 36: 35BWW17
DATE: May 25, 2021

PHOTO 37: 35BWW18
DATE: May 25, 2021

PHOTO 38: 35BWW19
DATE: May 25, 2021

PHOTO 39: 35BWW20
DATE: May 25, 2021

PHOTO 40: 35BWW23
DATE: May 25, 2021

PHOTO 41: 35BWW24
DATE: May 25, 2021

PHOTO 42: 35BWW25
DATE: May 25, 2021

PHOTO 43: 35BWW26
DATE: May 25, 2021

PHOTO 44: LHSMW58
DATE: May 25, 2021

01072787

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARMY
Site Name: 37
Well ID: 35BWW01
Inspection Date: 11/9/20
Well Completion Depth/Measured Depth: 20.95
Inspector: Scott Boggingar

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01072788

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARMY
Site Name: 37
Well ID: 35BWW10
Inspection Date: 11/9/20
Well Completion Depth/ Measured Depth: 36.39
Inspector: Scott Baggenerl

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches) 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☒ Yes ☐ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01072789

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARMY
Site Name: 37
Well ID: 35BWW05
Inspection Date: 11/9/20
Well Completion Depth/Measured Depth: 37.95
Inspector: Scott Beesinger

ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☐ Good ☐ Broken ☐ Cracked ☒ Need Paint
Lid Condition: ☒ Good ☐ Broken ☐ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): ~~8~~ 2 11
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01072790

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARMY
Site Name: 37
Well ID: LHSMW58
Inspection Date: 11/9/20
Well Completion Depth/ Measured Depth: 35.17
Inspector: Scott Beesinger

ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☐ Good ☐ Broken ☐ Cracked ☒ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☐ Yes ☒ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01072791

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARMY
Site Name: 37
Well ID: 35BWW11
Inspection Date: 11/9/20
Well Completion Depth/ Measured Depth: 36.65
Inspector: Scott Bassinger

ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☐ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches) 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01072792

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 37
Well ID: 35BWW20
Inspection Date: 11/9/20
Well Completion Depth/ Measured Depth: 32.95
Inspector: Scott Baggingar

☒ ABOVE GROUND
Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☐ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED
Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:
Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:
Inner Diameter (inches) 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:
Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01072793

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 37
Well ID: 35BWW19
Inspection Date: 11/9/20
Well Completion Depth/ Measured Depth: 36.63
Inspector: Scott Bessinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☐ Cracked
Hinge Condition: ☐ Good ☐ Less than 50% rusted ☒ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01072794

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARMY
Site Name: 37
Well ID: 35BWW18
Inspection Date: 11/9/20
Well Completion Depth/ Measured Depth: 36.45
Inspector: Scott Bassinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☐ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01072795

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARMY
Site Name: 37
Well ID: 35BWW09
Inspection Date: 11/9/20
Well Completion Depth/ Measured Depth: 37.05
Inspector: Scott Baesinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches) ≥ 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01072796

WELL INSPECTION FORM

Job Name: LTAAP
Job No.: 501032
Client: Army
Site Name: 37
Well ID: 35BMW26
Inspection Date: 11/10/20
Well Completion Depth/ Measured Depth: 38.00
Inspector: Scott Beesinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01072797

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARMY
Site Name: 37
Well ID: 35BWW04
Inspection Date: 11/10/20
Well Completion Depth/ Measured Depth: 33.35
Inspector: Scott Baggingar

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches) 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☐ Yes ☒ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01072798

WELL INSPECTION FORM

Job Name: LITAAP
Job No.: 501032
Client: Army
Site Name: 37
Well ID: 35BWW14
Inspection Date: 11/10/20
Well Completion Depth/Measured Depth: 37.31
Inspector: Scott Beasinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☐ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches) 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01072799

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 37
Well ID: 35BWW15
Inspection Date: 11/10/20
Well Completion Depth/Measured Depth: 50.12
Inspector: Scott Beesinger

ABOVE GROUND
Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☐ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

FLUSH MOUNTED
Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:
Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:
Inner Diameter (inches): 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:
Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☒ Yes ☐ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01072800

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARMY
Site Name: 37
Well ID: 35BWW23
Inspection Date: 11/10/20
Well Completion Depth/ Measured Depth: 33.60
Inspector: Scott Beesinger

ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☐ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? [illegible]
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01072801

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARMY
Site Name: 37
Well ID: 35BWW24
Inspection Date: 11/10/20
Well Completion Depth/ Measured Depth: 32.75
Inspector: Scott Beesinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01072802

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 50103Z
Client: Army
Site Name: 37
Well ID: 35BWW25
Inspection Date: 11/10/20
Well Completion Depth/ Measured Depth: 32.48
Inspector: Scott Baggingar

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARMY
Site Name: 37
Well ID: 35BWW08
Inspection Date: 11/11/20
Well Completion Depth/ Measured Depth: 34.20
Inspector: Scott Bassinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☐ Yes ☒ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01072804

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARMY
Site Name: 37
Well ID: 35BWW12
Inspection Date: 11/11/20
Well Completion Depth/ Measured Depth: 38.25
Inspector: Scott Beasinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☐ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): ~2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01072805

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 37
Well ID: 35BWW07
Inspection Date: 11/11/20
Well Completion Depth/ Measured Depth: 31.31
Inspector: Scott Beesinger

ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☐ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches) 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01072806

WELL INSPECTION FORM

Job Name: LTAAD
Job No.: 501032
Client: Army
Site Name: 37
Well ID: 35BWW13
Inspection Date: 11/11/20
Well Completion Depth/ ~~Measured Depth~~: 36.71
Inspector: Scott Bessinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☒ More than 50% rusted

☐ FLUSH MOUNTED

NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☒ Yes ☐ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01072807

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 37
Well ID: 35BWW16
Inspection Date: 11/11/20
Well Completion Depth/ Measured Depth: 36.91
Inspector: Scott Beesinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☐ Good ☐ Less than 50% rusted ☒ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches) 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☒ Yes ☐ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01072808

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 37
Well ID: 35BWW17
Inspection Date: 11/11/20
Well Completion Depth/ Measured Depth: 36.23
Inspector: Scott Bassinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☐ Good ☐ Less than 50% rusted ☒ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☒ Yes ☐ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01072809

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARMY
Site Name: 37
Well ID: 35B MW26
Inspection Date: 5/13/21
Well Completion Depth/ Measured Depth: 38.00
Inspector: Scott Beesinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01072810

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 37
Well ID: 35BWW01
Inspection Date: 5/13/21
Well Completion Depth/Measured Depth: 20.81
Inspector: Scott Beesinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☐ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01072811

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARMY
Site Name: 37
Well ID: 35BWW08
Inspection Date: 5/13/21
Well Completion Depth/ Measured Depth: 34.25
Inspector: Scott Buesinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☐ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☐ Yes ☒ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☒ Yes ☐ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01072812

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 37
Well ID: 35BWW10
Inspection Date: 5/18/21
Well Completion Depth/ Measured Depth: 36.37
Inspector: Scott Baggs; Nagr

ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☐ Good ☐ Less than 50% rusted ☒ More than 50% rusted

FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☒ Yes ☐ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01072813

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 37
Well ID: 35BWW05
Inspection Date: 5/13/21
Well Completion Depth/ Measured Depth: 19.93
Inspector: Scott Beesinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: SB ☒ Good ☐ Broken ☐ Cracked ☒ Need Paint
Lid Condition: ☒ Good ☐ Broken ☐ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging)

COMMENTS:

01072814

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARmy
Site Name: 37
Well ID: LHSMW58
Inspection Date: 5/13/21
Well Completion Depth/ Measured Depth: 34.18
Inspector: Scott Beesinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☐ Good ☐ Broken ☐ Cracked ☒ Need Paint
Lid Condition: ☒ Good ☐ Broken ☐ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☐ Yes ☒ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☒ Yes ☐ No
Is well open to completed depth? (complete when gauging)
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01072815

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARMY
Site Name: 37
Well ID: 35BWW04
Inspection Date: 5/13/21
Well Completion Depth/ Measured Depth: 33.31
Inspector: SCOTT BEESINGER

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☒ Need Paint
Lid Condition: ☒ Good ☐ Broken ☐ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☐ Yes ☒ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01072816

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 37
Well ID: 35AWW20
Inspection Date: 5/13/21
Well Completion Depth/ Measured Depth: 32.95
Inspector: Scott Beesinger

ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01072817

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 37
Well ID: 35BWW09
Inspection Date: 5/17/21
Well Completion Depth/ Measured Depth: 37.10
Inspector: Scott Baesinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 37
Well ID: 35BWW11
Inspection Date: 5/17/21
Well Completion Depth/ Measured Depth: 37.71
Inspector: Scott Baggenger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01072819

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARMY
Site Name: 37
Well ID: 35BWW25
Inspection Date: 5/17/21
Well Completion Depth/ Measured Depth: 32.55
Inspector: Scott Bessinger

ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01072820

WELL INSPECTION FORM

Job Name: LHAAAP
Well ID: 35BWW24
Job No.: 501032
Inspection Date: 5/17/21
Client: Army
Well Completion Depth/ Measured Depth: 32.75
Site Name: 37
Inspector: Scott Beesinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01072821

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 37
Well ID: 35BWW07
Inspection Date: 5/17/21
Well Completion Depth/ Measured Depth: 31.41
Inspector: Scott Baggenger

ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☐ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01072822

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 37
Well ID: 35BWW13
Inspection Date: 5/17/21
Well Completion Depth/ Measured Depth: 37.68
Inspector: Scott Bessinger

ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☐ Good ☐ Less than 50% rusted ☒ More than 50% rusted

FLUSH MOUNTED NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging)

COMMENTS:

01072823

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 37
Well ID: 35BWW12
Inspection Date: 5/18/21
Well Completion Depth/ Measured Depth: 38.23
Inspector: Scott Bressinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging)

COMMENTS:

01072824

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 37
Well ID: 35BWW23
Inspection Date: 5/18/21
Well Completion Depth/ Measured Depth: 33.65
Inspector: Scott Beesinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01072825

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 37
Well ID: 35BWW14
Inspection Date: 5/18/21
Well Completion Depth/ Measured Depth: 37.33
Inspector: Scott Baesinger

ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

01072826

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 37
Well ID: 35BWW15
Inspection Date: 5/18/21
Well Completion Depth/ Measured Depth: 50.13
Inspector: Scott Baggingar

ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging)

COMMENTS:

01072827

WELL INSPECTION FORM

Job Name: LHAAP | Well ID: 35BWW17
Job No.: 501032 | Inspection Date: 5/18/21
Client: Army | Well Completion Depth/ Measured Depth: 36.20
Site Name: 37 | Inspector: Scott Beesinger

ABOVE GROUND
Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☐ Good ☐ Less than 50% rusted ☒ More than 50% rusted

FLUSH MOUNTED
Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:
Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:
Inner Diameter (inches): 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:
Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging)

COMMENTS:

01072828

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 37
Well ID: 35BWW16
Inspection Date: 5/18/21
Well Completion Depth/ Measured Depth: 36.90
Inspector: Scott Bassinger

ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☐ Cracked
Hinge Condition: ☐ Good ☐ Less than 50% rusted ☒ More than 50% rusted

FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging)

COMMENTS:

01072829

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: Army
Site Name: 37
Well ID: 35BMW19
Inspection Date: 5/18/21
Well Completion Depth/ Measured Depth: 36.62
Inspector: Scott Bassinger

ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☐ Good ☐ Less than 50% rusted ☒ More than 50% rusted

FLUSH MOUNTED NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging)

COMMENTS:

01072830

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: 501032
Client: ARMY
Site Name: 37
Well ID: 35BWW18
Inspection Date: 5/18/21
Well Completion Depth/ Measured Depth: 35.49
Inspector: Scott Beginger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches) 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

Appendix E

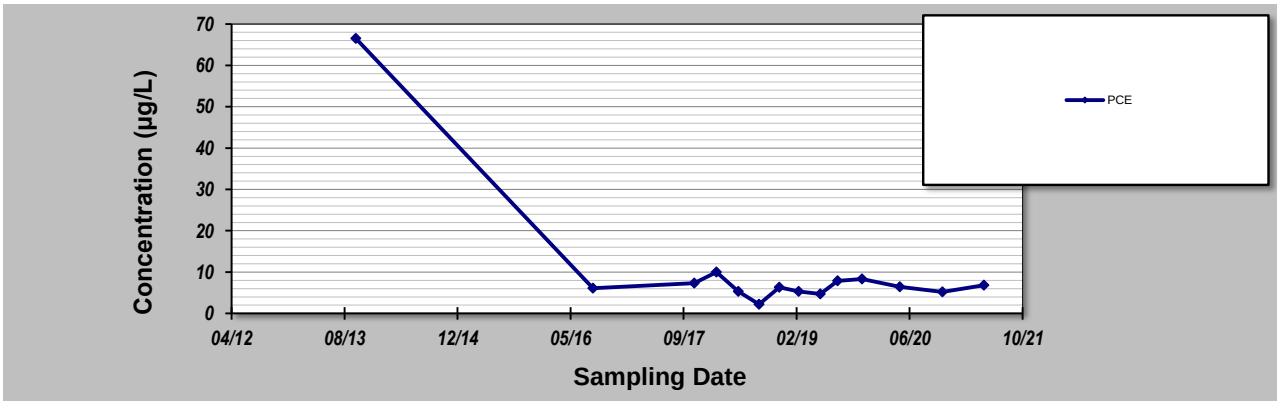
Mann-Kendall Trend Test Results

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	22-Jul-21	Job ID:	501032
Facility Name:	LHAAP-37	Constituent:	35BWW04
Conducted By:	Robert Mayer	Concentration Units:	µg/L

Sampling Point ID: PCE

Sampling Event	Sampling Date	35BWW04 CONCENTRATION (µg/L)
1	3-Oct-13	67
2	17-Aug-16	6.1
3	9-Nov-17	7.3
4	14-Feb-18	10
5	22-May-18	5.3
6	22-Aug-18	2.2
7	20-Nov-18	6.3
8	13-Feb-19	5.3
9	20-May-19	4.7
10	5-Aug-19	7.9
11	21-Nov-19	8.3
12	6-May-20	6.4
13	10-Nov-20	5.2
14	13-May-21	6.8
15		
16		
17		
18		
19		
20		
Coefficient of Variation:		1.53
Mann-Kendall Statistic (S):		-12
Confidence Factor:		72.3%
Concentration Trend:		No Trend



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water* , 41(3):355-367, 2003.

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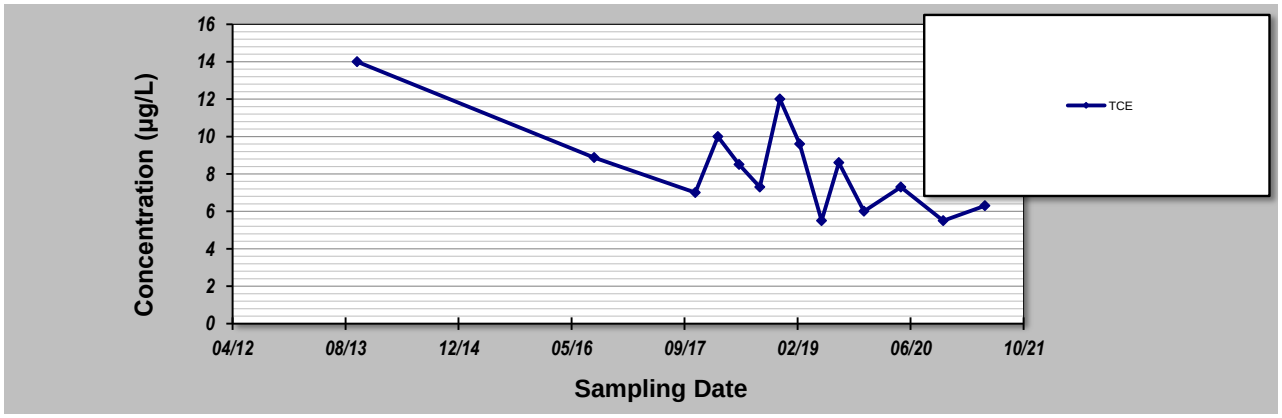
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	22-Jul-21	Job ID:	501032
Facility Name:	LHAAP-37	Constituent:	35BWW05
Conducted By:	Robert Mayer	Concentration Units:	µg/L
Sampling Point ID:	TCE		

Sampling Event	Sampling Date	35BWW05 CONCENTRATION (µg/L)
1	4-Oct-13	14
2	18-Aug-16	8.9
3	8-Nov-17	7.0
4	16-Feb-18	10
5	21-May-18	8.5
6	21-Aug-18	7.3
7	18-Nov-18	12
8	13-Feb-19	9.6
9	21-May-19	5.5
10	6-Aug-19	8.6
11	25-Nov-19	6
12	6-May-20	7.3
13	9-Nov-20	5.5
14	13-May-21	6.3
15		
16		
17		
18		
19		
20		
Coefficient of Variation:		0.30
Mann-Kendall Statistic (S):		-41
Confidence Factor:		98.7%
Concentration Trend:		Decreasing



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water* , 41(3):355-367, 2003.

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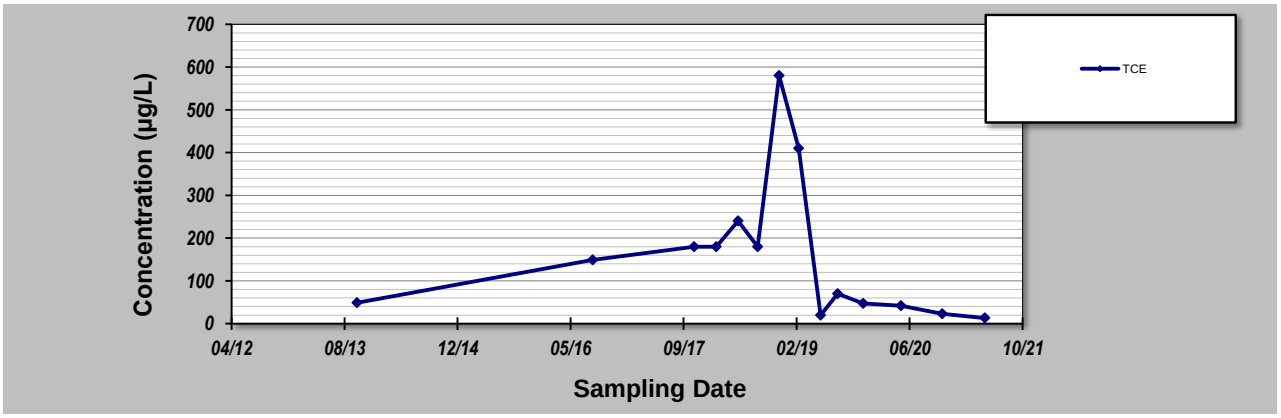
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	22-Jul-21	Job ID:	501032
Facility Name:	LHAAP-37	Constituent:	35BWW09
Conducted By:	Robert Mayer	Concentration Units:	µg/L
Sampling Point ID:	TCE		

Sampling Event	Sampling Date	35BWW09 CONCENTRATION (µg/L)
1	8-Oct-13	49
2	16-Aug-16	149
3	7-Nov-17	180
4	13-Feb-18	180
5	21-May-18	240
6	16-Aug-18	180
7	19-Nov-18	580
8	13-Feb-19	410
9	21-May-19	20
10	5-Aug-19	70
11	26-Nov-19	47
12	11-May-20	42
13	9-Nov-20	23
14	17-May-21	13
15		
16		
17		
18		
19		
20		
Coefficient of Variation:		1.06
Mann-Kendall Statistic (S):		-32
Confidence Factor:		95.5%
Concentration Trend:		Decreasing



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water* , 41(3):355-367, 2003.

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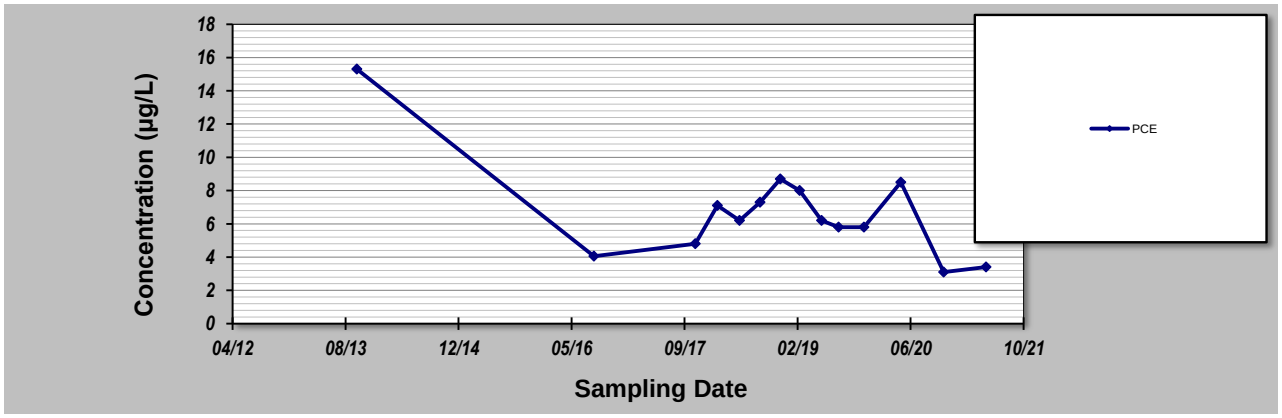
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	22-Jul-21	Job ID:	501032
Facility Name:	LHAAP-37	Constituent:	35BWW12
Conducted By:	Robert Mayer	Concentration Units:	µg/L
Sampling Point ID:	PCE		

Sampling Event	Sampling Date	35BWW12 CONCENTRATION (µg/L)
1	3-Oct-13	15.3
2	17-Aug-16	4.1
3	9-Nov-17	4.8
4	14-Feb-18	7.1
5	23-May-18	6.2
6	22-Aug-18	7.3
7	20-Nov-18	8.7
8	13-Feb-19	8.0
9	21-May-19	6.2
10	5-Aug-19	5.8
11	25-Nov-19	5.8
12	6-May-20	8.5
13	11-Nov-20	3.1
14	18-May-21	3.4
15		
16		
17		
18		
19		
20		
Coefficient of Variation:		0.45
Mann-Kendall Statistic (S):		-19
Confidence Factor:		83.5%
Concentration Trend:		Stable



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water* , 41(3):355-367, 2003.

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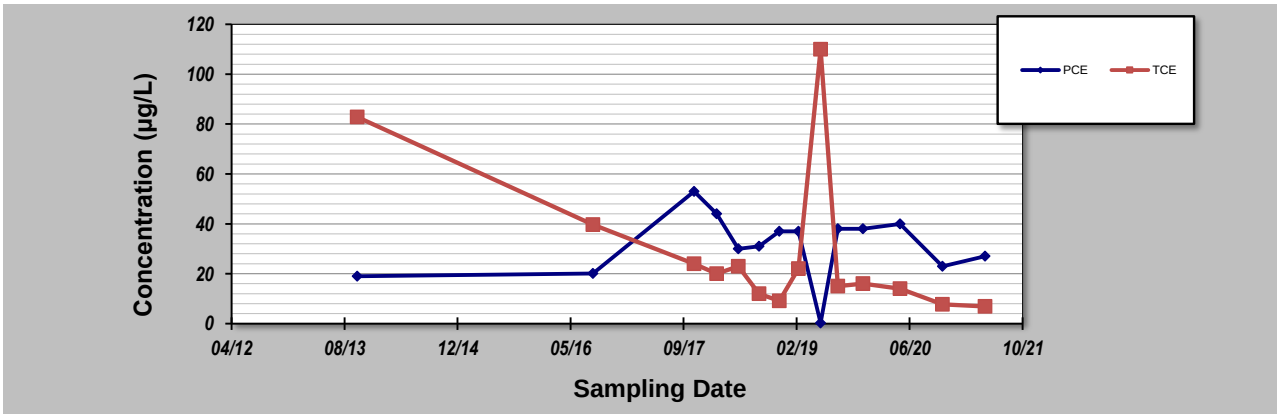
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	22-Jul-21	Job ID:	501032
Facility Name:	LHAAP-37	Constituent:	35BWW14
Conducted By:	Robert Mayer	Concentration Units:	µg/L

Sampling Point ID:	PCE	TCE					
Sampling Event	Sampling Date	35BWW14 CONCENTRATION (µg/L)						
1	9-Oct-13	19	83					
2	17-Aug-16	20	40					
3	7-Nov-17	53	24					
4	15-Feb-18	44	20					
5	22-May-18	30	23					
6	22-Aug-18	31	12					
7	20-Nov-18	37	9.1					
8	12-Feb-19	37	22					
9	21-May-19	0.25	110					
10	6-Aug-19	38	15					
11	25-Nov-19	38	16					
12	7-May-20	40	14					
13	10-Nov-20	23	7.7					
14	18-May-21	27	6.9					
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.42	1.06					
Mann-Kendall Statistic (S):		7	-53					
Confidence Factor:		62.6%	99.8%					
Concentration Trend:		No Trend	Decreasing					



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water* , 41(3):355-367, 2003.

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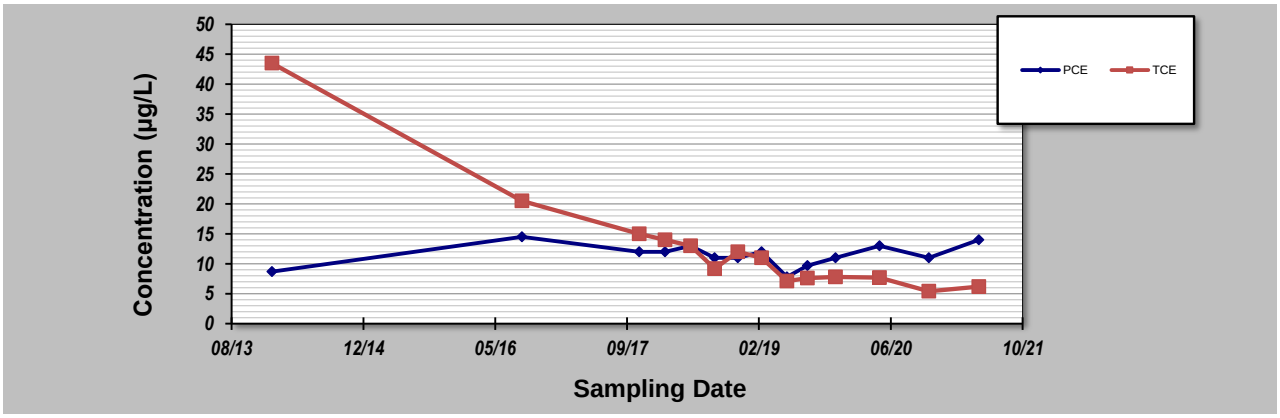
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	22-Jul-21	Job ID:	501032
Facility Name:	LHAAP-37	Constituent:	35BWW15
Conducted By:	Robet Mayer	Concentration Units:	µg/L

Sampling Point ID:	PCE	TCE					
Sampling Event	Sampling Date	35BWW15 CONCENTRATION (µg/L)						
1	14-Jan-14	8.7	44					
2	19-Aug-16	15	21					
3	7-Nov-17	12	15					
4	13-Feb-18	12	14					
5	21-May-18	13	13					
6	20-Aug-18	11	9.2					
7	16-Nov-18	11	12					
8	14-Feb-19	12	11					
9	21-May-19	7.8	7.1					
10	7-Aug-19	9.7	7.6					
11	22-Nov-19	11	7.8					
12	7-May-20	13	7.7					
13	10-Nov-20	11	5.4					
14	18-May-21	14	6.2					
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.16	0.76					
Mann-Kendall Statistic (S):		-1	-75					
Confidence Factor:		50.0%	>99.9%					
Concentration Trend:		Stable	Decreasing					



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water* , 41(3):355-367, 2003.

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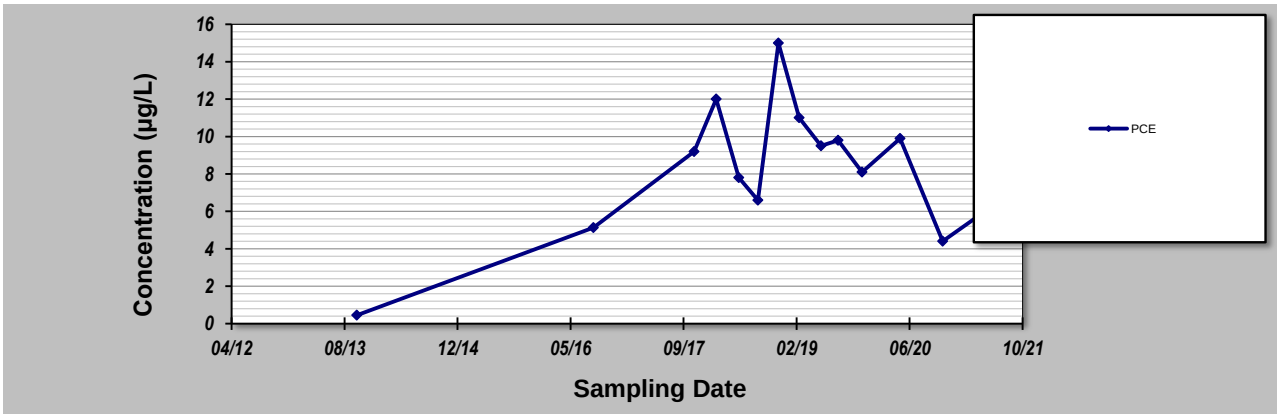
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	22-Jul-21	Job ID:	501032
Facility Name:	LHAAP-37	Constituent:	35BWW16
Conducted By:	Robert Mayer	Concentration Units:	µg/L
Sampling Point ID:	PCE		

Sampling Event	Sampling Date	35BWW16 CONCENTRATION (µg/L)
1	7-Oct-13	0.45
2	19-Aug-16	5.13
3	7-Nov-17	9.2
4	13-Feb-18	12
5	24-May-18	7.8
6	17-Aug-18	6.6
7	16-Nov-18	15
8	15-Feb-19	11
9	23-May-19	9.5
10	7-Aug-19	9.8
11	21-Nov-19	8.1
12	7-May-20	9.9
13	11-Nov-20	4.4
14	18-May-21	6
15		
16		
17		
18		
19		
20		
Coefficient of Variation:		0.44
Mann-Kendall Statistic (S):		5
Confidence Factor:		58.5%
Concentration Trend:		No Trend



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water* , 41(3):355-367, 2003.

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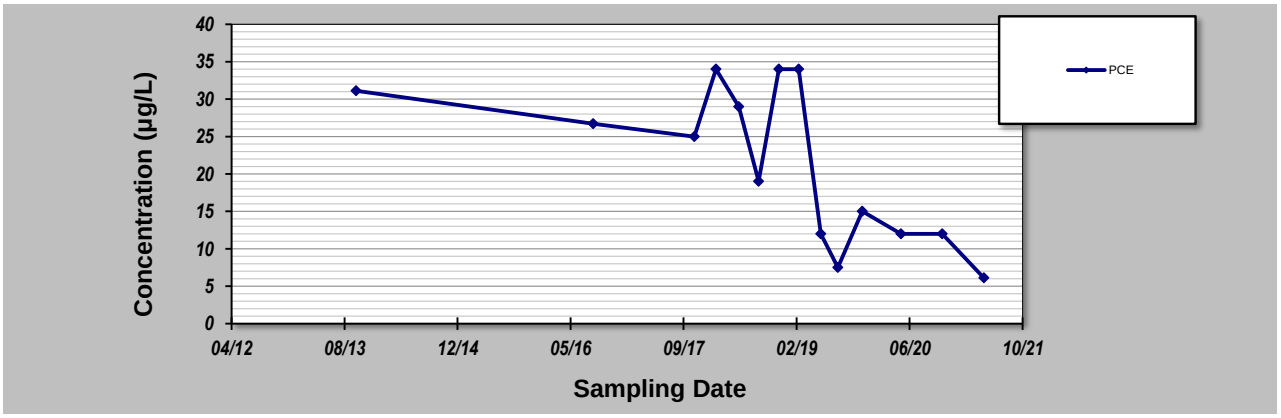
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	22-Jul-21	Job ID:	501032
Facility Name:	LHAAP-37	Constituent:	35BWW20
Conducted By:	Robert Mayer	Concentration Units:	µg/L
Sampling Point ID:	PCE		

Sampling Event	Sampling Date	35BWW20 CONCENTRATION (µg/L)
1	4-Oct-13	31
2	18-Aug-16	27
3	8-Nov-17	25
4	12-Feb-18	34
5	24-May-18	29
6	20-Aug-18	19
7	18-Nov-18	34
8	13-Feb-19	34
9	22-May-19	12
10	6-Aug-19	7.5
11	22-Nov-19	15
12	11-May-20	12
13	9-Nov-20	12
14	13-May-21	6.1
15		
16		
17		
18		
19		
20		
Coefficient of Variation:		0.49
Mann-Kendall Statistic (S):		-47
Confidence Factor:		99.5%
Concentration Trend:		Decreasing



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water* , 41(3):355-367, 2003.

DISCLAIMER: *The GSI Mann-Kendall Toolkit is available "as is". Considerable care has been exercised in preparing this software product; however, no party, including without limitation GSI Environmental Inc., makes any representation or warranty regarding the accuracy, correctness, or completeness of the information contained herein, and no such party shall be liable for any direct, indirect, consequential, incidental or other damages resulting from the use of this product or the information contained herein. Information in this publication is subject to change without notice. GSI Environmental Inc., disclaims any responsibility or obligation to update the information contained herein.*

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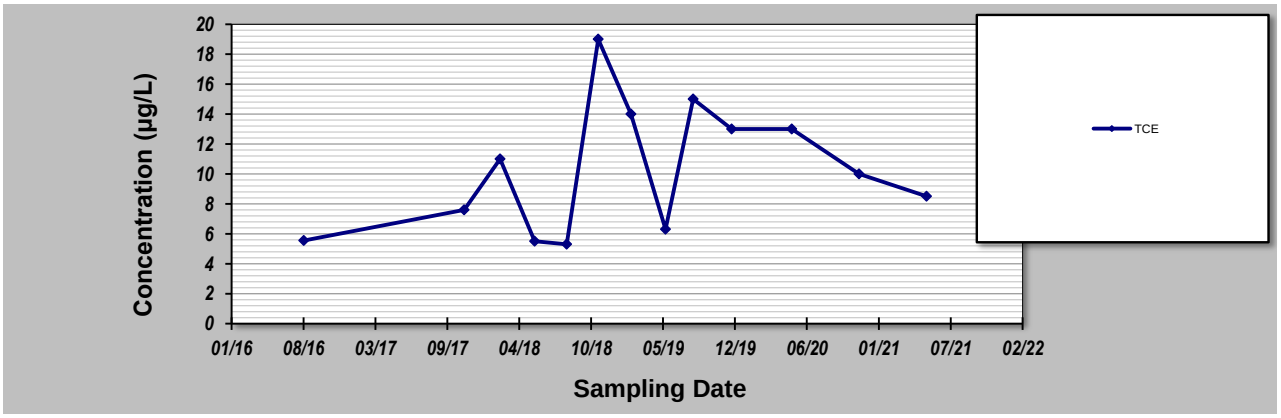
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	22-Jul-21	Job ID:	501032
Facility Name:	LHAAP-37	Constituent:	35BWW25
Conducted By:	Robert Mayer	Concentration Units:	µg/L
Sampling Point ID:	TCE		

Sampling Event	Sampling Date	35BWW25 CONCENTRATION (µg/L)
1	19-Aug-16	5.55
2	8-Nov-17	7.6
3	16-Feb-18	11
4	23-May-18	5.5
5	20-Aug-18	5.3
6	16-Nov-18	19
7	15-Feb-19	14
8	22-May-19	6.3
9	7-Aug-19	15
10	22-Nov-19	13
11	7-May-20	13
12	10-Nov-20	10
13	17-May-21	8.5
14		
15		
16		
17		
18		
19		
20		
Coefficient of Variation:		0.42
Mann-Kendall Statistic (S):		13
Confidence Factor:		76.4%
Concentration Trend:		No Trend



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water* , 41(3):355-367, 2003.

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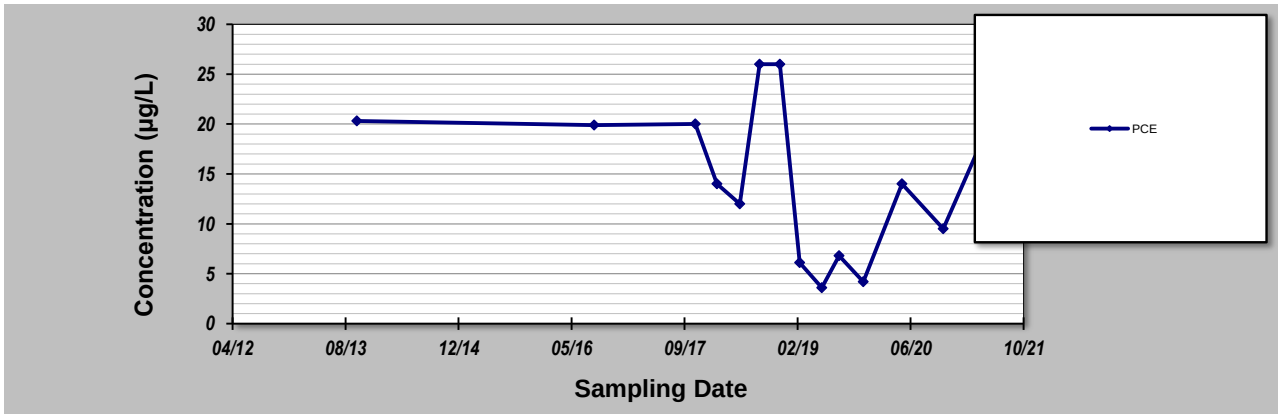
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	7/22/221	Job ID:	501032
Facility Name:	LHAAP-37	Constituent:	LHSMW58
Conducted By:	Robert Mayer	Concentration Units:	µg/L
Sampling Point ID:	PCE		

Sampling Event	Sampling Date	LHSMW58 CONCENTRATION (µg/L)
1	3-Oct-13	20
2	18-Aug-16	20
3	8-Nov-17	20
4	12-Feb-18	14
5	24-May-18	12
6	20-Aug-18	26
7	18-Nov-18	26
8	13-Feb-19	6.1
9	22-May-19	3.6
10	7-Aug-19	6.8
11	22-Nov-19	4.2
12	11-May-20	14
13	9-Nov-20	9.5
14	13-May-21	19
15		
16		
17		
18		
19		
20		
Coefficient of Variation:		0.53
Mann-Kendall Statistic (S):		-27
Confidence Factor:		92.1%
Concentration Trend:		Prob. Decreasing



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water* , 41(3):355-367, 2003.

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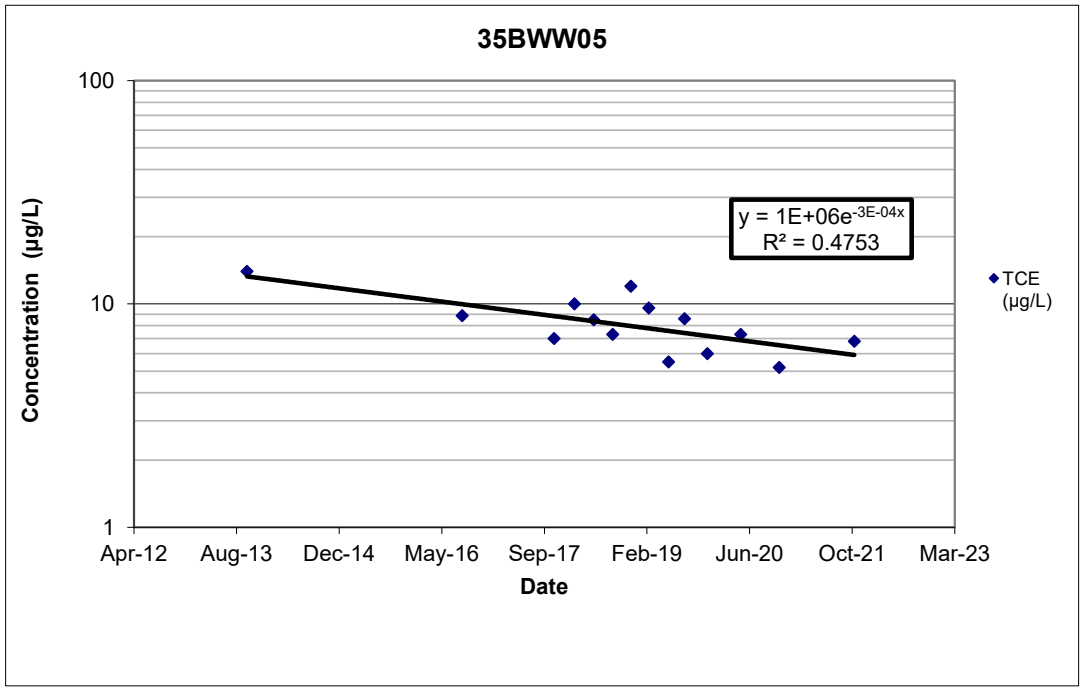
Appendix F

Regression Analysis

Time-Dependent Attenuation Rate Constant and Estimated Cleanup Time
35BWW05

Date	TCE (µg/L)
4-Oct-13	14
18-Aug-16	8.87
8-Nov-17	7
16-Feb-18	10
21-May-18	8.5
21-Aug-18	7.3
18-Nov-18	12
13-Feb-19	9.6
21-May-19	5.5
6-Aug-19	8.6
25-Nov-19	6
6-May-20	7.3
10-Nov-20	5.2
10-Nov-21	6.8



Chemical	Attenuation Rate Constant (day^{-1})	Attenuation Half-life (days)	Attenuation Half-life (years)	Current Conc. (µg/L)	Target Concentration (µg/L)	Estimated Cleanup Time (years)
TCE	3.00E-04	2310.5	6.3	6.8	5	2.8

Notes:

The estimated cleanup time was calculated as the time it would take the most recent detected PCE concentration to reach the MCL using the site-specific attenuation rate, and assuming first order degradation kinetics.

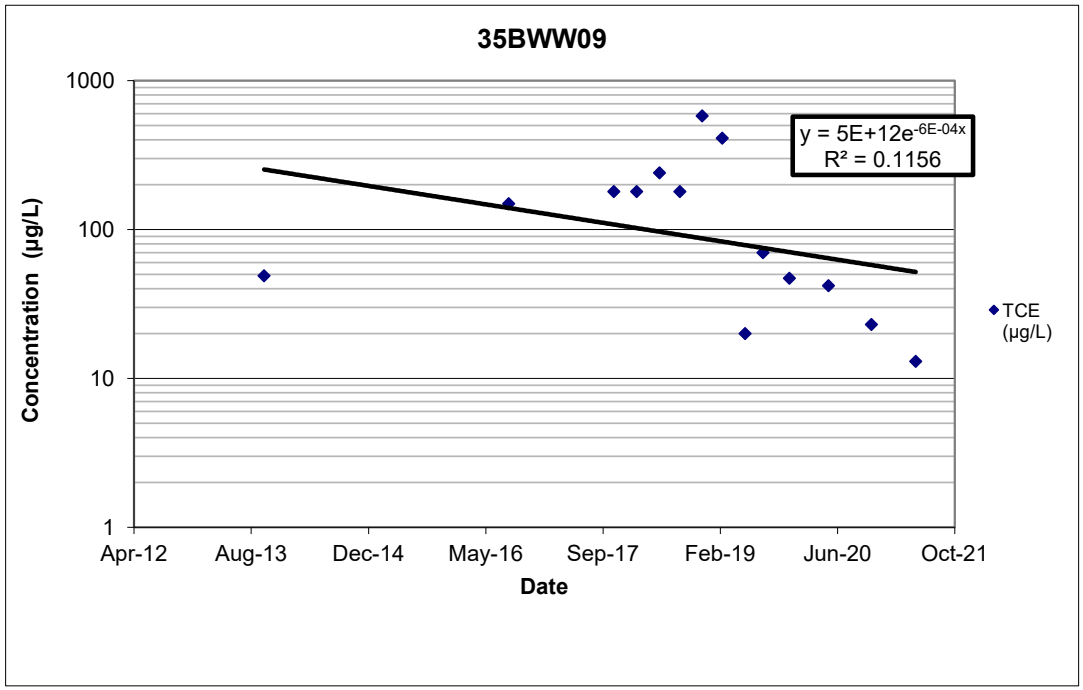
µg/L - micrograms per liter

MCL - maximum contaminant level

TCE - trichloroethene

Time-Dependent Attenuation Rate Constant and Estimated Cleanup Time
35BWW09

Date	TCE (µg/L)
8-Oct-13	49
16-Aug-16	149
7-Nov-17	180
13-Feb-18	180
21-May-18	240
16-Aug-18	180
19-Nov-18	580
13-Feb-19	410
21-May-19	20
5-Aug-19	70
26-Nov-19	47
11-May-20	42
9-Nov-20	23
17-May-21	13

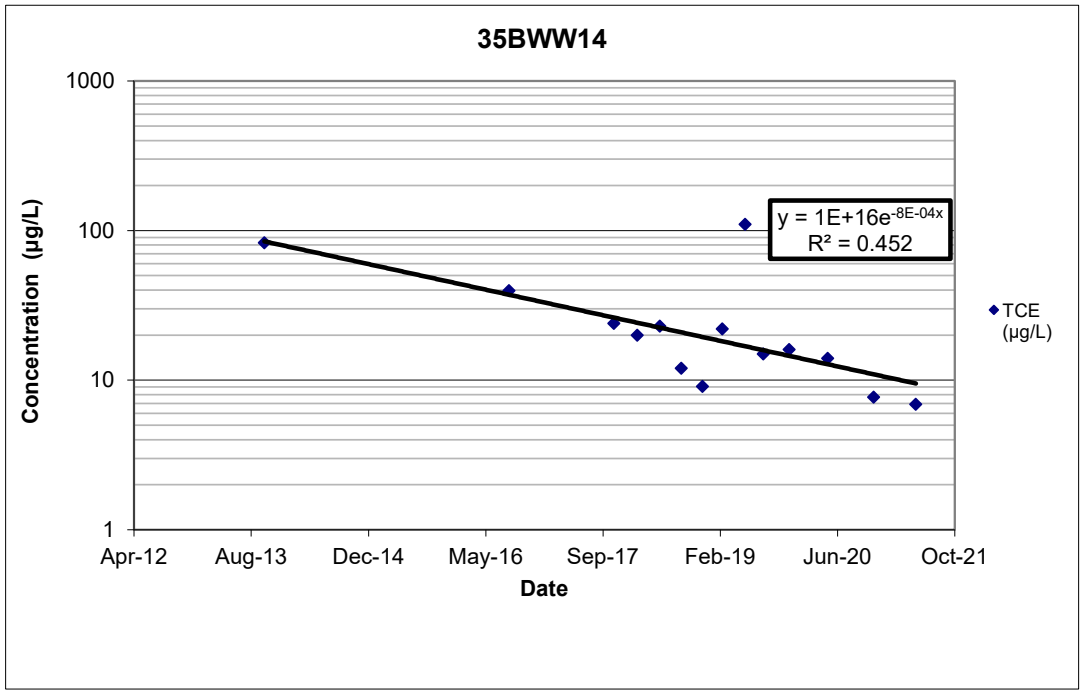


Chemical	Attenuation Rate Constant (day^{-1})	Attenuation Half-life (days)	Attenuation Half-life (years)	Current Conc. (µg/L)	Target Concentration (µg/L)	Estimated Cleanup Time (years)
TCE	6.00E-04	1155.2	3.2	13	5	4.4

Notes:
The estimated cleanup time was calculated as the time it would take the most recent detected PCE concentration to reach the MCL using the site-specific attenuation rate, and assuming first order degradation kinetics.
µg/L - micrograms per liter
MCL - maximum contaminant level
TCE - trichloroethene

Time-Dependent Attenuation Rate Constant and Estimated Cleanup Time
35BWW14

Date	TCE (µg/L)
9-Oct-13	83
17-Aug-16	39.7
7-Nov-17	24
15-Feb-18	20
22-May-18	23
22-Aug-18	12
20-Nov-18	9.1
12-Feb-19	22
21-May-19	110
6-Aug-19	15
25-Nov-19	16
7-May-20	14
19-Nov-20	7.7
18-May-21	6.9



Chemical	Attenuation Rate Constant (day^{-1})	Attenuation Half-life (days)	Attenuation Half-life (years)	Current Conc. (µg/L)	Target Concentration (µg/L)	Estimated Cleanup Time (years)
TCE	8.00E-04	866.4	2.4	6.9	5	1.1

Notes:
The estimated cleanup time was calculated as the time it would take the most recent detected TCE concentration to reach the MCL using the site-specific attenuation rate, and assuming first order degradation kinetics.

µg/L - micrograms per liter

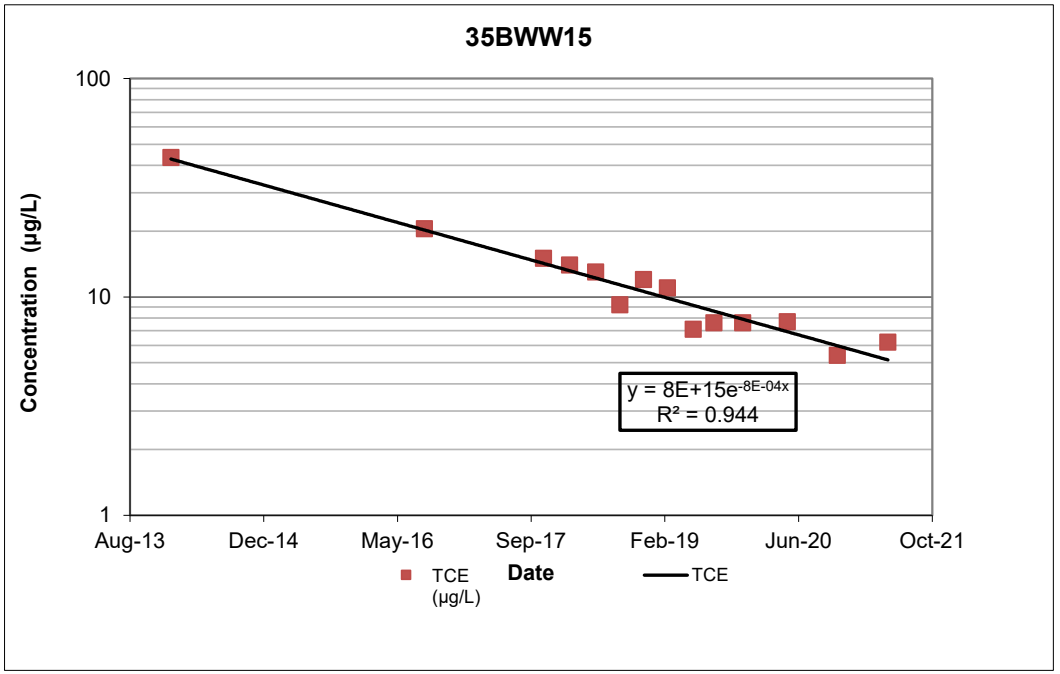
MCL - maximum contaminant level

PCE - tetrachloroethene

Time-Dependent Attenuation Rate Constant and Estimated Cleanup Time

35BWW15

Date	TCE (µg/L)
14-Jan-14	43.5
19-Aug-16	20.5
7-Nov-17	15
13-Feb-18	14
21-May-18	13
20-Aug-18	9.2
16-Nov-18	12
14-Feb-19	11
21-May-19	7.1
7-Aug-19	7.6
22-Nov-19	7.6
7-May-20	7.7
10-Nov-20	5.4
18-May-21	6.2

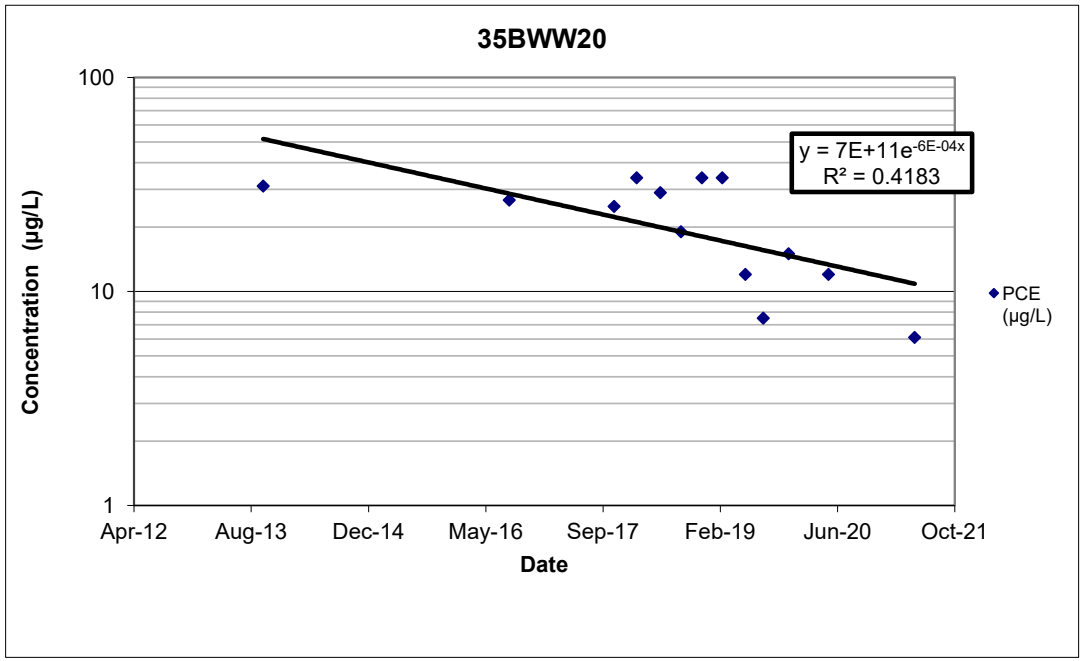


Chemical	Attenuation Rate Constant (day^{-1})	Attenuation Half-life (days)	Attenuation Half-life (years)	Current Conc. (µg/L)	Target Concentration (µg/L)	Estimated Cleanup Time (years)
TCE	8.00E-04	866.4	2.4	6.2	5	0.7

Notes:
The estimated cleanup time was calculated as the time it would take the most recent detected TCE concentration to reach the MCL using the site-specific attenuation rate, and assuming first order degradation kinetics.
µg/L - micrograms per liter
MCL - maximum contaminant level
TCE - trichloroethene

Time-Dependent Attenuation Rate Constant and Estimated Cleanup Time
LHSMW20

Date	PCE (µg/L)
4-Oct-13	31
18-Aug-16	26.7
8-Nov-17	25
12-Feb-18	34
24-May-18	29
20-Aug-18	19
18-Nov-18	34
13-Feb-19	34
22-May-19	12
6-Aug-19	7.5
22-Nov-19	15
11-May-20	12
13-May-21	6.1

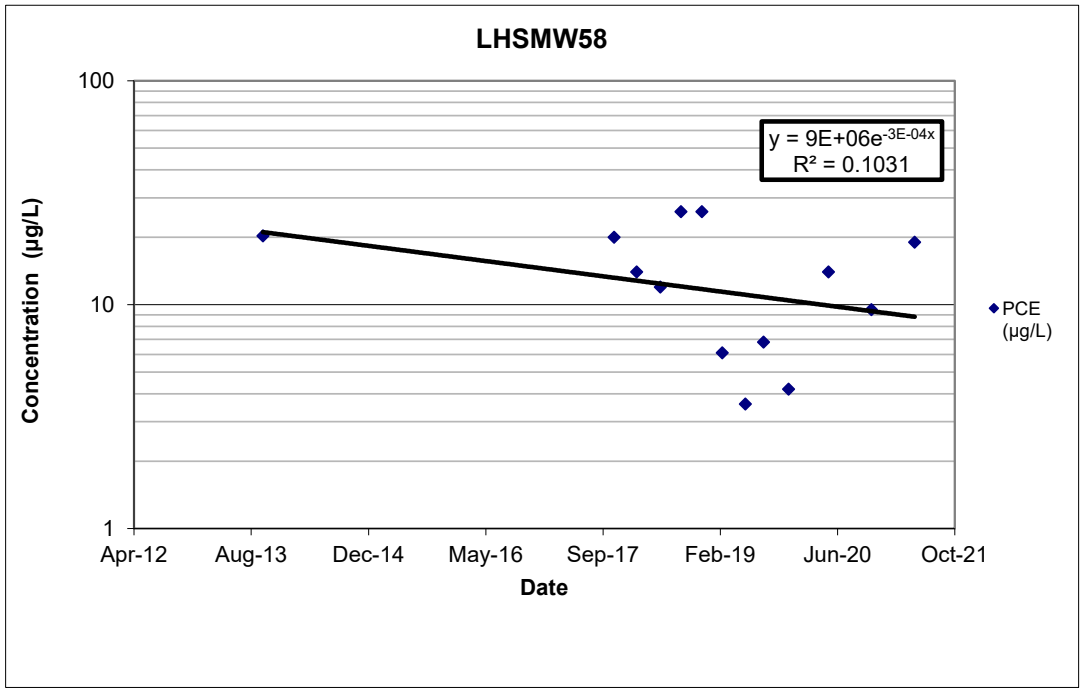


Chemical	Attenuation Rate Constant (day^{-1})	Attenuation Half-life (days)	Attenuation Half-life (years)	Current Conc. (µg/L)	Target Concentration (µg/L)	Estimated Cleanup Time (years)
PCE	6.00E-04	1155.2	3.2	6.1	5	0.9

Notes:
The estimated cleanup time was calculated as the time it would take the most recent detected PCE concentration to reach the MCL using the site-specific attenuation rate, and assuming first order degradation kinetics.
µg/L - micrograms per liter
MCL - maximum contaminant level
PCE - tetrachloroethene

Time-Dependent Attenuation Rate Constant and Estimated Cleanup Time
LHSMW58

Date	PCE (µg/L)
3-Oct-13	20
8-Nov-17	20
12-Feb-18	14
24-May-18	12
20-Aug-18	26
18-Nov-18	26
13-Feb-19	6.1
22-May-19	3.6
7-Aug-19	6.8
22-Nov-19	4.2
11-May-20	14
9-Nov-20	9.5
13-May-21	19



Chemical	Attenuation Rate Constant (day^{-1})	Attenuation Half-life (days)	Attenuation Half-life (years)	Current Conc. (µg/L)	Target Concentration (µg/L)	Estimated Cleanup Time (years)
PCE	3.00E-04	2310.5	6.3	19	5	12.2

Notes:
The estimated cleanup time was calculated as the time it would take the most recent detected PCE concentration to reach the MCL using the site-specific attenuation rate, and assuming first order degradation kinetics.
µg/L - micrograms per liter
MCL - maximum contaminant level
PCE - tetrachloroethene

10450 Stancliff Rd. Suite 210
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T: +1 281 530 5656
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January 7, 2021

Susan Huang
Aptim Environmental & Infrastucture, Inc.
2500 City West Blvd., Suite 1700
Houston, TX 77042

Work Order: **HS20110527**

Laboratory Results for: **Longhorn Army Ammunition Plant 37**

Dear Susan Huang,

ALS Environmental received 18 sample(s) on Nov 11, 2020 for the analysis presented in the following report.

Revision I - This report was revised to correct to sample ID's; 35WW19-201109 updated to 35BWW19-201109 & 35WW18-201109 updated to 35BWW18-201109 .

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Generated By: JUMOKE.LAWAL
RJ Modashia
Project Manager

ALS Houston, US Date: 29-Nov-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
Work Order: HS20110527

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS20110527-01	35BWW01-201109	Groundwater		09-Nov-2020 07:25	11-Nov-2020 10:20	☐
HS20110527-02	35BWW10-201109	Groundwater		09-Nov-2020 08:10	11-Nov-2020 10:20	☐
HS20110527-03	35BWW05-201109	Groundwater		09-Nov-2020 08:55	11-Nov-2020 10:20	☐
HS20110527-04	LHSMW58-201109	Groundwater		09-Nov-2020 09:40	11-Nov-2020 10:20	☐
HS20110527-05	35BWW11-201109	Groundwater		09-Nov-2020 10:25	11-Nov-2020 10:20	☐
HS20110527-06	35BWW20-201109	Groundwater		09-Nov-2020 11:10	11-Nov-2020 10:20	☐
HS20110527-07	35BWW20-201109-FD	Groundwater		09-Nov-2020 11:10	11-Nov-2020 10:20	☐
HS20110527-08	35BWW09-201109	Groundwater		09-Nov-2020 11:55	11-Nov-2020 10:20	☐
HS20110527-09	35BWW19-201109	Groundwater		09-Nov-2020 12:40	11-Nov-2020 10:20	☐
HS20110527-10	35BWW18-201109	Groundwater		09-Nov-2020 13:25	11-Nov-2020 10:20	☐
HS20110527-11	35BWW26-201110	Groundwater		10-Nov-2020 07:20	11-Nov-2020 10:20	☐
HS20110527-12	35BWW04-201110	Groundwater		10-Nov-2020 08:05	11-Nov-2020 10:20	☐
HS20110527-13	35BWW14-201110	Groundwater		10-Nov-2020 09:00	11-Nov-2020 10:20	☐
HS20110527-14	35BWW15-201110	Groundwater		10-Nov-2020 09:50	11-Nov-2020 10:20	☐
HS20110527-15	35BWW23-201110	Groundwater		10-Nov-2020 10:30	11-Nov-2020 10:20	☐
HS20110527-16	35BWW24-201110	Groundwater		10-Nov-2020 11:20	11-Nov-2020 10:20	☐
HS20110527-17	35BWW25-201110	Groundwater		10-Nov-2020 12:15	11-Nov-2020 10:20	☐
HS20110527-18	Trip Blank-201110	Groundwater	CG-100620-211	10-Nov-2020 00:00	11-Nov-2020 10:20	☐

ALS Houston, US Date: 29-Nov-20

Client: Aptim Environmental & Infrastucture, Inc. **CASE NARRATIVE**
Project: Longhorn Army Ammunition Plant 37
Work Order: HS20110527

Work Order Comments

- The analysis for Methane, Methene, Ethane and CO2 by RSK175 was subcontracted to ALS Simi Valley, CA. Final report attached.
- The analysis for TOC was subcontracted to ALS Environmental in Kelso WA. Final report attached.

GCMS Volatiles by Method SW8260

Batch ID: R373216

Sample ID: LHSMW58-201109 (HS20110527-04MSD)

- MSD/RPD fauled QC limits for some few compounds

Batch ID: R373272

Sample ID: HS20110985-26MS

- MS and MSD are for an unrelated sample

WetChemistry by Method SW9056

Batch ID: R372517

Sample ID: HS20101419-01MS

- MS and MSD are for an unrelated sample (Chloride,Sulfate)

ALS Houston, US Date: 29-Nov-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
Sample ID: 35BWW01-201109
Collection Date: 09-Nov-2020 07:25

ANALYTICAL REPORT
WorkOrder:HS20110527
Lab ID:HS20110527-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 22:21
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 22:21
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	UG/L	1	22-Nov-2020 22:21
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	UG/L	1	22-Nov-2020 22:21
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 22:21
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 22:21
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 22:21
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 22:21
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	22-Nov-2020 22:21
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	22-Nov-2020 22:21
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	22-Nov-2020 22:21
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 22:21
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 22:21
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 22:21
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	22-Nov-2020 22:21
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 22:21
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	22-Nov-2020 22:21
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 22:21
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	22-Nov-2020 22:21
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 22:21
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	22-Nov-2020 22:21
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 22:21
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	22-Nov-2020 22:21
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 22:21
2-Hexanone	2.0	U	1.0	2.0	2.0	UG/L	1	22-Nov-2020 22:21
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	UG/L	1	22-Nov-2020 22:21
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 22:21
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	UG/L	1	22-Nov-2020 22:21
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	22-Nov-2020 22:21
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 22:21
Bromobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	22-Nov-2020 22:21
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 22:21
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 22:21
Bromoform	1.0	U	0.40	1.0	1.0	UG/L	1	22-Nov-2020 22:21
Bromomethane	1.0	U	0.40	1.0	1.0	UG/L	1	22-Nov-2020 22:21
Carbon disulfide	2.0	U	0.60	2.0	2.0	UG/L	1	22-Nov-2020 22:21
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	UG/L	1	22-Nov-2020 22:21
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 22:21
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 22:21

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 29-Nov-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
Sample ID: 35BWW01-201109
Collection Date: 09-Nov-2020 07:25

ANALYTICAL REPORT
WorkOrder:HS20110527
Lab ID:HS20110527-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 22:21
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 22:21
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 22:21
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	22-Nov-2020 22:21
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 22:21
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 22:21
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 22:21
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 22:21
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	22-Nov-2020 22:21
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 22:21
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	22-Nov-2020 22:21
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	22-Nov-2020 22:21
n-Butylbenzene	1.0	U	0.40	1.0	1.0	UG/L	1	22-Nov-2020 22:21
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 22:21
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 22:21
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 22:21
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 22:21
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 22:21
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 22:21
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 22:21
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 22:21
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 22:21
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 22:21
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 22:21
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 22:21
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 22:21
Surr: 1,2-Dichloroethane-d4	*86.5*			**0**	*81-118*	*%REC*	*1*	*22-Nov-2020 22:21*
Surr: 4-Bromofluorobenzene	*90.0*			**0**	*85-114*	*%REC*	*1*	*22-Nov-2020 22:21*
Surr: Dibromofluoromethane	*91.8*			**0**	*80-119*	*%REC*	*1*	*22-Nov-2020 22:21*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*1*	*22-Nov-2020 22:21*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 29-Nov-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
Sample ID: 35BWW10-201109
Collection Date: 09-Nov-2020 08:10

ANALYTICAL REPORT
WorkOrder:HS20110527
Lab ID:HS20110527-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 22:42
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 22:42
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	UG/L	1	22-Nov-2020 22:42
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	UG/L	1	22-Nov-2020 22:42
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 22:42
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 22:42
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 22:42
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 22:42
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	22-Nov-2020 22:42
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	22-Nov-2020 22:42
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	22-Nov-2020 22:42
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 22:42
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 22:42
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 22:42
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	22-Nov-2020 22:42
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 22:42
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	22-Nov-2020 22:42
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 22:42
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	22-Nov-2020 22:42
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 22:42
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	22-Nov-2020 22:42
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 22:42
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	22-Nov-2020 22:42
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 22:42
2-Hexanone	2.0	U	1.0	2.0	2.0	UG/L	1	22-Nov-2020 22:42
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	UG/L	1	22-Nov-2020 22:42
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 22:42
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	UG/L	1	22-Nov-2020 22:42
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	22-Nov-2020 22:42
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 22:42
Bromobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	22-Nov-2020 22:42
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 22:42
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 22:42
Bromoform	1.0	U	0.40	1.0	1.0	UG/L	1	22-Nov-2020 22:42
Bromomethane	1.0	U	0.40	1.0	1.0	UG/L	1	22-Nov-2020 22:42
Carbon disulfide	2.0	U	0.60	2.0	2.0	UG/L	1	22-Nov-2020 22:42
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	UG/L	1	22-Nov-2020 22:42
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 22:42
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 22:42

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 29-Nov-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
Sample ID: 35BWW10-201109
Collection Date: 09-Nov-2020 08:10

ANALYTICAL REPORT
WorkOrder:HS20110527
Lab ID:HS20110527-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 22:42
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 22:42
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 22:42
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	22-Nov-2020 22:42
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 22:42
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 22:42
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 22:42
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 22:42
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	22-Nov-2020 22:42
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 22:42
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	22-Nov-2020 22:42
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	22-Nov-2020 22:42
n-Butylbenzene	1.0	U	0.40	1.0	1.0	UG/L	1	22-Nov-2020 22:42
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 22:42
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 22:42
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 22:42
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 22:42
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 22:42
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 22:42
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 22:42
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 22:42
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 22:42
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 22:42
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 22:42
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 22:42
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 22:42
Surr: 1,2-Dichloroethane-d4	*86.1*			**0**	*81-118*	*%REC*	*1*	*22-Nov-2020 22:42*
Surr: 4-Bromofluorobenzene	*87.6*			**0**	*85-114*	*%REC*	*1*	*22-Nov-2020 22:42*
Surr: Dibromofluoromethane	*91.1*			**0**	*80-119*	*%REC*	*1*	*22-Nov-2020 22:42*
Surr: Toluene-d8	*103*			**0**	*89-112*	*%REC*	*1*	*22-Nov-2020 22:42*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 29-Nov-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
Sample ID: 35BWW05-201109
Collection Date: 09-Nov-2020 08:55

ANALYTICAL REPORT
WorkOrder:HS20110527
Lab ID:HS20110527-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 23:04
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 23:04
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	UG/L	1	22-Nov-2020 23:04
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	UG/L	1	22-Nov-2020 23:04
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 23:04
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 23:04
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 23:04
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 23:04
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	22-Nov-2020 23:04
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	22-Nov-2020 23:04
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	22-Nov-2020 23:04
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 23:04
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 23:04
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 23:04
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	22-Nov-2020 23:04
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 23:04
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	22-Nov-2020 23:04
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 23:04
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	22-Nov-2020 23:04
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 23:04
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	22-Nov-2020 23:04
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 23:04
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	22-Nov-2020 23:04
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 23:04
2-Hexanone	2.0	U	1.0	2.0	2.0	UG/L	1	22-Nov-2020 23:04
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	UG/L	1	22-Nov-2020 23:04
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 23:04
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	UG/L	1	22-Nov-2020 23:04
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	22-Nov-2020 23:04
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 23:04
Bromobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	22-Nov-2020 23:04
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 23:04
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 23:04
Bromoform	1.0	U	0.40	1.0	1.0	UG/L	1	22-Nov-2020 23:04
Bromomethane	1.0	U	0.40	1.0	1.0	UG/L	1	22-Nov-2020 23:04
Carbon disulfide	2.0	U	0.60	2.0	2.0	UG/L	1	22-Nov-2020 23:04
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	UG/L	1	22-Nov-2020 23:04
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 23:04
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 23:04

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 29-Nov-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
Sample ID: 35BWW05-201109
Collection Date: 09-Nov-2020 08:55

ANALYTICAL REPORT
WorkOrder:HS20110527
Lab ID:HS20110527-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 23:04
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 23:04
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 23:04
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	22-Nov-2020 23:04
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 23:04
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 23:04
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 23:04
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 23:04
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	22-Nov-2020 23:04
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 23:04
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	22-Nov-2020 23:04
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	22-Nov-2020 23:04
n-Butylbenzene	1.0	U	0.40	1.0	1.0	UG/L	1	22-Nov-2020 23:04
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 23:04
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 23:04
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 23:04
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 23:04
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 23:04
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 23:04
Tetrachloroethene	**2.1**		**0.30**	**0.50**	**1.0**	**UG/L**	1	22-Nov-2020 23:04
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 23:04
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 23:04
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 23:04
Trichloroethene	**5.5**		**0.20**	**0.50**	**1.0**	**UG/L**	1	22-Nov-2020 23:04
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 23:04
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 23:04
Surr: 1,2-Dichloroethane-d4	*85.1*			**0**	*81-118*	*%REC*	*1*	*22-Nov-2020 23:04*
Surr: 4-Bromofluorobenzene	*93.0*			**0**	*85-114*	*%REC*	*1*	*22-Nov-2020 23:04*
Surr: Dibromofluoromethane	*90.7*			**0**	*80-119*	*%REC*	*1*	*22-Nov-2020 23:04*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*1*	*22-Nov-2020 23:04*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 29-Nov-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
Sample ID: LHSMW58-201109
Collection Date: 09-Nov-2020 09:40

ANALYTICAL REPORT
WorkOrder:HS20110527
Lab ID:HS20110527-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 22:00
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 22:00
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	UG/L	1	22-Nov-2020 22:00
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	UG/L	1	22-Nov-2020 22:00
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 22:00
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 22:00
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 22:00
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 22:00
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	22-Nov-2020 22:00
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	22-Nov-2020 22:00
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	22-Nov-2020 22:00
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 22:00
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 22:00
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 22:00
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	22-Nov-2020 22:00
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 22:00
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	22-Nov-2020 22:00
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 22:00
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	22-Nov-2020 22:00
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 22:00
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	22-Nov-2020 22:00
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 22:00
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	22-Nov-2020 22:00
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 22:00
2-Hexanone	2.0	U	1.0	2.0	2.0	UG/L	1	22-Nov-2020 22:00
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	UG/L	1	22-Nov-2020 22:00
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 22:00
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	UG/L	1	22-Nov-2020 22:00
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	22-Nov-2020 22:00
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 22:00
Bromobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	22-Nov-2020 22:00
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 22:00
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 22:00
Bromoform	1.0	U	0.40	1.0	1.0	UG/L	1	22-Nov-2020 22:00
Bromomethane	1.0	U	0.40	1.0	1.0	UG/L	1	22-Nov-2020 22:00
Carbon disulfide	2.0	U	0.60	2.0	2.0	UG/L	1	22-Nov-2020 22:00
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	UG/L	1	22-Nov-2020 22:00
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 22:00
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 22:00

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 29-Nov-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
Sample ID: LHSMW58-201109
Collection Date: 09-Nov-2020 09:40

ANALYTICAL REPORT
WorkOrder:HS20110527
Lab ID:HS20110527-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 22:00
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 22:00
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 22:00
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	22-Nov-2020 22:00
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 22:00
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 22:00
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 22:00
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 22:00
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	22-Nov-2020 22:00
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 22:00
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	22-Nov-2020 22:00
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	22-Nov-2020 22:00
n-Butylbenzene	1.0	U	0.40	1.0	1.0	UG/L	1	22-Nov-2020 22:00
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 22:00
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 22:00
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 22:00
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 22:00
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 22:00
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 22:00
Tetrachloroethene	**9.5**		**0.30**	**0.50**	**1.0**	**UG/L**	1	22-Nov-2020 22:00
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 22:00
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 22:00
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 22:00
Trichloroethene	**0.81**	J	**0.20**	**0.50**	**1.0**	**UG/L**	1	22-Nov-2020 22:00
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 22:00
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 22:00
Surr: 1,2-Dichloroethane-d4	*86.8*			**0**	*81-118*	*%REC*	*1*	*22-Nov-2020 22:00*
Surr: 4-Bromofluorobenzene	*89.2*			**0**	*85-114*	*%REC*	*1*	*22-Nov-2020 22:00*
Surr: Dibromofluoromethane	*90.0*			**0**	*80-119*	*%REC*	*1*	*22-Nov-2020 22:00*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*1*	*22-Nov-2020 22:00*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 29-Nov-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
Sample ID: 35BWW11-201109
Collection Date: 09-Nov-2020 10:25

ANALYTICAL REPORT
WorkOrder:HS20110527
Lab ID:HS20110527-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 23:25
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 23:25
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	UG/L	1	22-Nov-2020 23:25
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	UG/L	1	22-Nov-2020 23:25
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 23:25
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 23:25
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 23:25
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 23:25
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	22-Nov-2020 23:25
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	22-Nov-2020 23:25
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	22-Nov-2020 23:25
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 23:25
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 23:25
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 23:25
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	22-Nov-2020 23:25
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 23:25
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	22-Nov-2020 23:25
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 23:25
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	22-Nov-2020 23:25
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 23:25
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	22-Nov-2020 23:25
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 23:25
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	22-Nov-2020 23:25
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 23:25
2-Hexanone	2.0	U	1.0	2.0	2.0	UG/L	1	22-Nov-2020 23:25
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	UG/L	1	22-Nov-2020 23:25
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 23:25
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	UG/L	1	22-Nov-2020 23:25
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	22-Nov-2020 23:25
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 23:25
Bromobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	22-Nov-2020 23:25
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 23:25
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 23:25
Bromoform	1.0	U	0.40	1.0	1.0	UG/L	1	22-Nov-2020 23:25
Bromomethane	1.0	U	0.40	1.0	1.0	UG/L	1	22-Nov-2020 23:25
Carbon disulfide	2.0	U	0.60	2.0	2.0	UG/L	1	22-Nov-2020 23:25
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	UG/L	1	22-Nov-2020 23:25
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 23:25
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 23:25

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 29-Nov-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
Sample ID: 35BWW11-201109
Collection Date: 09-Nov-2020 10:25

ANALYTICAL REPORT
WorkOrder:HS20110527
Lab ID:HS20110527-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 23:25
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 23:25
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 23:25
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	22-Nov-2020 23:25
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 23:25
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 23:25
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 23:25
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 23:25
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	22-Nov-2020 23:25
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 23:25
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	22-Nov-2020 23:25
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	22-Nov-2020 23:25
n-Butylbenzene	1.0	U	0.40	1.0	1.0	UG/L	1	22-Nov-2020 23:25
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 23:25
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 23:25
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 23:25
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 23:25
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 23:25
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 23:25
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 23:25
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 23:25
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 23:25
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 23:25
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 23:25
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 23:25
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 23:25
Surr: 1,2-Dichloroethane-d4	*86.7*			**0**	*81-118*	*%REC*	*1*	*22-Nov-2020 23:25*
Surr: 4-Bromofluorobenzene	*86.8*			**0**	*85-114*	*%REC*	*1*	*22-Nov-2020 23:25*
Surr: Dibromofluoromethane	*88.0*			**0**	*80-119*	*%REC*	*1*	*22-Nov-2020 23:25*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*1*	*22-Nov-2020 23:25*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 29-Nov-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
Sample ID: 35BWW20-201109
Collection Date: 09-Nov-2020 11:10

ANALYTICAL REPORT
WorkOrder:HS20110527
Lab ID:HS20110527-06
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 23:46
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 23:46
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	UG/L	1	22-Nov-2020 23:46
1,1,2-Trichlor-1,2,2-trifluoroethane	**1.8**		**0.50**	**1.0**	**1.0**	**UG/L**	1	22-Nov-2020 23:46
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 23:46
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 23:46
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 23:46
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 23:46
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	22-Nov-2020 23:46
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	22-Nov-2020 23:46
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	22-Nov-2020 23:46
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 23:46
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 23:46
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 23:46
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	22-Nov-2020 23:46
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 23:46
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	22-Nov-2020 23:46
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 23:46
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	22-Nov-2020 23:46
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 23:46
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	22-Nov-2020 23:46
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 23:46
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	22-Nov-2020 23:46
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 23:46
2-Hexanone	2.0	U	1.0	2.0	2.0	UG/L	1	22-Nov-2020 23:46
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	UG/L	1	22-Nov-2020 23:46
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 23:46
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	UG/L	1	22-Nov-2020 23:46
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	22-Nov-2020 23:46
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 23:46
Bromobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	22-Nov-2020 23:46
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 23:46
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 23:46
Bromoform	1.0	U	0.40	1.0	1.0	UG/L	1	22-Nov-2020 23:46
Bromomethane	1.0	U	0.40	1.0	1.0	UG/L	1	22-Nov-2020 23:46
Carbon disulfide	2.0	U	0.60	2.0	2.0	UG/L	1	22-Nov-2020 23:46
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	UG/L	1	22-Nov-2020 23:46
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 23:46

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 29-Nov-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
Sample ID: 35BWW20-201109
Collection Date: 09-Nov-2020 11:10

ANALYTICAL REPORT
WorkOrder:HS20110527
Lab ID:HS20110527-06
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 23:46
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 23:46
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 23:46
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 23:46
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	22-Nov-2020 23:46
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 23:46
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 23:46
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 23:46
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 23:46
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	22-Nov-2020 23:46
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 23:46
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	22-Nov-2020 23:46
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	22-Nov-2020 23:46
n-Butylbenzene	1.0	U	0.40	1.0	1.0	UG/L	1	22-Nov-2020 23:46
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 23:46
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 23:46
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 23:46
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 23:46
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 23:46
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 23:46
Tetrachloroethene	**12**		**0.30**	**0.50**	**1.0**	**UG/L**	1	22-Nov-2020 23:46
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 23:46
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 23:46
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 23:46
Trichloroethene	**2.2**		**0.20**	**0.50**	**1.0**	**UG/L**	1	22-Nov-2020 23:46
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	22-Nov-2020 23:46
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	22-Nov-2020 23:46
Surr: 1,2-Dichloroethane-d4	*85.7*			**0**	*81-118*	*%REC*	*1*	*22-Nov-2020 23:46*
Surr: 4-Bromofluorobenzene	*87.4*			**0**	*85-114*	*%REC*	*1*	*22-Nov-2020 23:46*
Surr: Dibromofluoromethane	*88.4*			**0**	*80-119*	*%REC*	*1*	*22-Nov-2020 23:46*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*1*	*22-Nov-2020 23:46*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 29-Nov-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
Sample ID: 35BWW20-201109-FD
Collection Date: 09-Nov-2020 11:10

ANALYTICAL REPORT
WorkOrder:HS20110527
Lab ID:HS20110527-07
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 00:07
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 00:07
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 00:07
1,1,2-Trichlor-1,2,2-trifluoroethane	**2.0**		**0.50**	**1.0**	**1.0**	**UG/L**	1	23-Nov-2020 00:07
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 00:07
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 00:07
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 00:07
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 00:07
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 00:07
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 00:07
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 00:07
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 00:07
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 00:07
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 00:07
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 00:07
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 00:07
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 00:07
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 00:07
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 00:07
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 00:07
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 00:07
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 00:07
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	23-Nov-2020 00:07
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 00:07
2-Hexanone	2.0	U	1.0	2.0	2.0	UG/L	1	23-Nov-2020 00:07
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 00:07
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 00:07
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	UG/L	1	23-Nov-2020 00:07
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	23-Nov-2020 00:07
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 00:07
Bromobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 00:07
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 00:07
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 00:07
Bromoform	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 00:07
Bromomethane	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 00:07
Carbon disulfide	2.0	U	0.60	2.0	2.0	UG/L	1	23-Nov-2020 00:07
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 00:07
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 00:07

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 29-Nov-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
Sample ID: 35BWW20-201109-FD
Collection Date: 09-Nov-2020 11:10

ANALYTICAL REPORT
WorkOrder:HS20110527
Lab ID:HS20110527-07
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 00:07
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 00:07
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 00:07
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 00:07
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	23-Nov-2020 00:07
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 00:07
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 00:07
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 00:07
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 00:07
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	23-Nov-2020 00:07
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 00:07
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	23-Nov-2020 00:07
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	23-Nov-2020 00:07
n-Butylbenzene	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 00:07
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 00:07
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 00:07
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 00:07
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 00:07
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 00:07
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 00:07
Tetrachloroethene	**13**		**0.30**	**0.50**	**1.0**	**UG/L**	1	23-Nov-2020 00:07
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 00:07
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 00:07
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 00:07
Trichloroethene	**2.3**		**0.20**	**0.50**	**1.0**	**UG/L**	1	23-Nov-2020 00:07
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 00:07
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 00:07
Surr: 1,2-Dichloroethane-d4	*86.9*			**0**	*81-118*	*%REC*	*1*	*23-Nov-2020 00:07*
Surr: 4-Bromofluorobenzene	*88.3*			**0**	*85-114*	*%REC*	*1*	*23-Nov-2020 00:07*
Surr: Dibromofluoromethane	*90.4*			**0**	*80-119*	*%REC*	*1*	*23-Nov-2020 00:07*
Surr: Toluene-d8	*105*			**0**	*89-112*	*%REC*	*1*	*23-Nov-2020 00:07*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 29-Nov-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
Sample ID: 35BWW09-201109
Collection Date: 09-Nov-2020 11:55

ANALYTICAL REPORT
WorkOrder:HS20110527
Lab ID:HS20110527-08
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 00:28
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 00:28
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 00:28
1,1,2-Trichlor-1,2,2-trifluoroethane	**2.3**		**0.50**	**1.0**	**1.0**	**UG/L**	1	23-Nov-2020 00:28
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 00:28
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 00:28
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 00:28
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 00:28
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 00:28
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 00:28
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 00:28
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 00:28
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 00:28
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 00:28
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 00:28
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 00:28
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 00:28
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 00:28
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 00:28
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 00:28
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 00:28
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 00:28
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	23-Nov-2020 00:28
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 00:28
2-Hexanone	2.0	U	1.0	2.0	2.0	UG/L	1	23-Nov-2020 00:28
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 00:28
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 00:28
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	UG/L	1	23-Nov-2020 00:28
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	23-Nov-2020 00:28
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 00:28
Bromobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 00:28
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 00:28
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 00:28
Bromoform	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 00:28
Bromomethane	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 00:28
Carbon disulfide	2.0	U	0.60	2.0	2.0	UG/L	1	23-Nov-2020 00:28
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 00:28
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 00:28

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 29-Nov-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
Sample ID: 35BWW09-201109
Collection Date: 09-Nov-2020 11:55

ANALYTICAL REPORT
WorkOrder:HS20110527
Lab ID:HS20110527-08
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 00:28
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 00:28
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 00:28
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 00:28
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	23-Nov-2020 00:28
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 00:28
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 00:28
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 00:28
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 00:28
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	23-Nov-2020 00:28
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 00:28
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	23-Nov-2020 00:28
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	23-Nov-2020 00:28
n-Butylbenzene	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 00:28
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 00:28
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 00:28
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 00:28
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 00:28
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 00:28
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 00:28
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 00:28
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 00:28
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 00:28
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 00:28
Trichloroethene	**23**		**0.20**	**0.50**	**1.0**	**UG/L**	1	23-Nov-2020 00:28
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 00:28
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 00:28
Surr: 1,2-Dichloroethane-d4	*86.0*			**0**	*81-118*	*%REC*	*1*	*23-Nov-2020 00:28*
Surr: 4-Bromofluorobenzene	*88.6*			**0**	*85-114*	*%REC*	*1*	*23-Nov-2020 00:28*
Surr: Dibromofluoromethane	*90.5*			**0**	*80-119*	*%REC*	*1*	*23-Nov-2020 00:28*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*1*	*23-Nov-2020 00:28*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 29-Nov-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
Sample ID: 35BWW19-201109
Collection Date: 09-Nov-2020 12:40

ANALYTICAL REPORT
WorkOrder:HS20110527
Lab ID:HS20110527-09
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 00:49
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 00:49
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 00:49
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 00:49
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 00:49
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 00:49
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 00:49
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 00:49
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 00:49
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 00:49
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 00:49
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 00:49
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 00:49
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 00:49
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 00:49
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 00:49
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 00:49
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 00:49
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 00:49
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 00:49
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 00:49
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 00:49
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	23-Nov-2020 00:49
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 00:49
2-Hexanone	2.0	U	1.0	2.0	2.0	UG/L	1	23-Nov-2020 00:49
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 00:49
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 00:49
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	UG/L	1	23-Nov-2020 00:49
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	23-Nov-2020 00:49
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 00:49
Bromobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 00:49
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 00:49
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 00:49
Bromoform	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 00:49
Bromomethane	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 00:49
Carbon disulfide	2.0	U	0.60	2.0	2.0	UG/L	1	23-Nov-2020 00:49
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 00:49
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 00:49
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 00:49

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 29-Nov-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
Sample ID: 35BWW19-201109
Collection Date: 09-Nov-2020 12:40

ANALYTICAL REPORT
WorkOrder:HS20110527
Lab ID:HS20110527-09
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 00:49
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 00:49
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 00:49
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	23-Nov-2020 00:49
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 00:49
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 00:49
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 00:49
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 00:49
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	23-Nov-2020 00:49
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 00:49
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	23-Nov-2020 00:49
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	23-Nov-2020 00:49
n-Butylbenzene	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 00:49
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 00:49
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 00:49
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 00:49
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 00:49
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 00:49
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 00:49
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 00:49
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 00:49
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 00:49
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 00:49
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 00:49
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 00:49
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 00:49
Surr: 1,2-Dichloroethane-d4	*84.2*			**0**	*81-118*	*%REC*	*1*	*23-Nov-2020 00:49*
Surr: 4-Bromofluorobenzene	*89.6*			**0**	*85-114*	*%REC*	*1*	*23-Nov-2020 00:49*
Surr: Dibromofluoromethane	*88.3*			**0**	*80-119*	*%REC*	*1*	*23-Nov-2020 00:49*
Surr: Toluene-d8	*102*			**0**	*89-112*	*%REC*	*1*	*23-Nov-2020 00:49*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 29-Nov-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
Sample ID: 35BWW18-201109
Collection Date: 09-Nov-2020 13:25

ANALYTICAL REPORT
WorkOrder:HS20110527
Lab ID:HS20110527-10
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 01:10
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 01:10
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 01:10
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 01:10
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 01:10
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 01:10
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 01:10
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 01:10
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 01:10
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 01:10
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 01:10
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 01:10
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 01:10
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 01:10
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 01:10
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 01:10
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 01:10
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 01:10
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 01:10
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 01:10
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 01:10
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 01:10
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	23-Nov-2020 01:10
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 01:10
2-Hexanone	2.0	U	1.0	2.0	2.0	UG/L	1	23-Nov-2020 01:10
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 01:10
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 01:10
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	UG/L	1	23-Nov-2020 01:10
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	23-Nov-2020 01:10
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 01:10
Bromobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 01:10
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 01:10
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 01:10
Bromoform	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 01:10
Bromomethane	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 01:10
Carbon disulfide	2.0	U	0.60	2.0	2.0	UG/L	1	23-Nov-2020 01:10
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 01:10
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 01:10
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 01:10

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 29-Nov-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
Sample ID: 35BWW18-201109
Collection Date: 09-Nov-2020 13:25

ANALYTICAL REPORT
WorkOrder:HS20110527
Lab ID:HS20110527-10
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 01:10
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 01:10
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 01:10
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	23-Nov-2020 01:10
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 01:10
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 01:10
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 01:10
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 01:10
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	23-Nov-2020 01:10
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 01:10
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	23-Nov-2020 01:10
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	23-Nov-2020 01:10
n-Butylbenzene	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 01:10
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 01:10
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 01:10
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 01:10
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 01:10
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 01:10
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 01:10
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 01:10
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 01:10
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 01:10
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 01:10
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 01:10
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 01:10
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 01:10
Surr: 1,2-Dichloroethane-d4	*84.9*			**0**	*81-118*	*%REC*	*1*	*23-Nov-2020 01:10*
Surr: 4-Bromofluorobenzene	*89.9*			**0**	*85-114*	*%REC*	*1*	*23-Nov-2020 01:10*
Surr: Dibromofluoromethane	*88.6*			**0**	*80-119*	*%REC*	*1*	*23-Nov-2020 01:10*
Surr: Toluene-d8	*105*			**0**	*89-112*	*%REC*	*1*	*23-Nov-2020 01:10*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 29-Nov-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
Sample ID: 35BWW26-201110
Collection Date: 10-Nov-2020 07:20

ANALYTICAL REPORT
WorkOrder:HS20110527
Lab ID:HS20110527-11
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 12:58
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 12:58
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 12:58
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 12:58
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 12:58
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 12:58
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 12:58
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 12:58
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 12:58
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 12:58
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 12:58
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 12:58
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 12:58
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 12:58
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 12:58
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 12:58
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 12:58
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 12:58
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 12:58
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 12:58
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 12:58
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 12:58
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	23-Nov-2020 12:58
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 12:58
2-Hexanone	2.0	U	1.0	2.0	2.0	UG/L	1	23-Nov-2020 12:58
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 12:58
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 12:58
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	UG/L	1	23-Nov-2020 12:58
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	23-Nov-2020 12:58
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 12:58
Bromobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 12:58
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 12:58
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 12:58
Bromoform	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 12:58
Bromomethane	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 12:58
Carbon disulfide	2.0	U	0.60	2.0	2.0	UG/L	1	23-Nov-2020 12:58
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 12:58
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 12:58
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 12:58

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 29-Nov-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
Sample ID: 35BWW26-201110
Collection Date: 10-Nov-2020 07:20

ANALYTICAL REPORT
WorkOrder:HS20110527
Lab ID:HS20110527-11
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 12:58
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 12:58
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 12:58
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	23-Nov-2020 12:58
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 12:58
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 12:58
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 12:58
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 12:58
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	23-Nov-2020 12:58
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 12:58
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	23-Nov-2020 12:58
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	23-Nov-2020 12:58
n-Butylbenzene	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 12:58
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 12:58
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 12:58
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 12:58
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 12:58
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 12:58
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 12:58
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 12:58
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 12:58
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 12:58
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 12:58
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 12:58
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 12:58
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 12:58
Surr: 1,2-Dichloroethane-d4	*87.1*			**0**	*81-118*	*%REC*	*1*	*23-Nov-2020 12:58*
Surr: 4-Bromofluorobenzene	*89.5*			**0**	*85-114*	*%REC*	*1*	*23-Nov-2020 12:58*
Surr: Dibromofluoromethane	*92.0*			**0**	*80-119*	*%REC*	*1*	*23-Nov-2020 12:58*
Surr: Toluene-d8	*102*			**0**	*89-112*	*%REC*	*1*	*23-Nov-2020 12:58*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: YP
Chloride	**32.6**		**0.200**	**0.500**	**0.500**	**mg/L**	1	11-Nov-2020 21:24
Nitrogen, Nitrate (As N)	**0.192**		**0.0300**	**0.100**	**0.100**	**mg/L**	1	11-Nov-2020 21:24
Sulfate	**23.7**		**0.200**	**0.500**	**0.500**	**mg/L**	1	11-Nov-2020 21:24
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUBCA
Subcontract Analysis	See Attached		0	0		NA	1	24-Nov-2020 16:51
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	25-Nov-2020 10:35

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 29-Nov-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
Sample ID: 35BWW04-201110
Collection Date: 10-Nov-2020 08:05

ANALYTICAL REPORT
WorkOrder:HS20110527
Lab ID:HS20110527-12
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 13:40
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 13:40
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 13:40
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 13:40
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 13:40
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 13:40
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 13:40
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 13:40
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 13:40
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 13:40
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 13:40
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 13:40
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 13:40
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 13:40
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 13:40
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 13:40
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 13:40
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 13:40
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 13:40
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 13:40
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 13:40
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 13:40
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	23-Nov-2020 13:40
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 13:40
2-Hexanone	2.0	U	1.0	2.0	2.0	UG/L	1	23-Nov-2020 13:40
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 13:40
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 13:40
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	UG/L	1	23-Nov-2020 13:40
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	23-Nov-2020 13:40
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 13:40
Bromobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 13:40
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 13:40
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 13:40
Bromoform	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 13:40
Bromomethane	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 13:40
Carbon disulfide	2.0	U	0.60	2.0	2.0	UG/L	1	23-Nov-2020 13:40
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 13:40
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 13:40
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 13:40

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 29-Nov-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
Sample ID: 35BWW04-201110
Collection Date: 10-Nov-2020 08:05

ANALYTICAL REPORT
WorkOrder:HS20110527
Lab ID:HS20110527-12
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 13:40
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 13:40
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 13:40
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	23-Nov-2020 13:40
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 13:40
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 13:40
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 13:40
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 13:40
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	23-Nov-2020 13:40
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 13:40
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	23-Nov-2020 13:40
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	23-Nov-2020 13:40
n-Butylbenzene	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 13:40
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 13:40
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 13:40
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 13:40
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 13:40
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 13:40
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 13:40
Tetrachloroethene	**5.2**		**0.30**	**0.50**	**1.0**	**UG/L**	1	23-Nov-2020 13:40
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 13:40
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 13:40
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 13:40
Trichloroethene	**0.72**	J	**0.20**	**0.50**	**1.0**	**UG/L**	1	23-Nov-2020 13:40
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 13:40
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 13:40
Surr: 1,2-Dichloroethane-d4	*86.4*			**0**	*81-118*	*%REC*	*1*	*23-Nov-2020 13:40*
Surr: 4-Bromofluorobenzene	*89.7*			**0**	*85-114*	*%REC*	*1*	*23-Nov-2020 13:40*
Surr: Dibromofluoromethane	*91.0*			**0**	*80-119*	*%REC*	*1*	*23-Nov-2020 13:40*
Surr: Toluene-d8	*103*			**0**	*89-112*	*%REC*	*1*	*23-Nov-2020 13:40*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: YP
Chloride	**4.01**		**0.200**	**0.500**	**0.500**	**mg/L**	1	11-Nov-2020 21:42
Nitrogen, Nitrate (As N)	**0.206**		**0.0300**	**0.100**	**0.100**	**mg/L**	1	11-Nov-2020 21:42
Sulfate	**26.1**		**0.200**	**0.500**	**0.500**	**mg/L**	1	11-Nov-2020 21:42
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUBCA
Subcontract Analysis	See Attached		0	0		NA	1	24-Nov-2020 16:51
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	25-Nov-2020 10:35

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 29-Nov-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
Sample ID: 35BWW14-201110
Collection Date: 10-Nov-2020 09:00

ANALYTICAL REPORT
WorkOrder:HS20110527
Lab ID:HS20110527-13
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 14:01
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 14:01
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 14:01
1,1,2-Trichlor-1,2,2-trifluoroethane	**13**		**0.50**	**1.0**	**1.0**	**UG/L**	1	23-Nov-2020 14:01
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 14:01
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 14:01
1,1-Dichloroethene	**2.1**		**0.20**	**0.50**	**1.0**	**UG/L**	1	23-Nov-2020 14:01
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 14:01
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 14:01
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 14:01
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 14:01
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 14:01
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 14:01
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 14:01
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 14:01
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 14:01
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 14:01
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 14:01
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 14:01
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 14:01
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 14:01
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 14:01
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	23-Nov-2020 14:01
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 14:01
2-Hexanone	2.0	U	1.0	2.0	2.0	UG/L	1	23-Nov-2020 14:01
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 14:01
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 14:01
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	UG/L	1	23-Nov-2020 14:01
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	23-Nov-2020 14:01
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 14:01
Bromobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 14:01
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 14:01
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 14:01
Bromoform	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 14:01
Bromomethane	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 14:01
Carbon disulfide	2.0	U	0.60	2.0	2.0	UG/L	1	23-Nov-2020 14:01
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 14:01
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 14:01

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 29-Nov-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
Sample ID: 35BWW14-201110
Collection Date: 10-Nov-2020 09:00

ANALYTICAL REPORT
WorkOrder:HS20110527
Lab ID:HS20110527-13
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 14:01
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 14:01
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 14:01
cis-1,2-Dichloroethene	**0.64**	J	**0.20**	**0.50**	**1.0**	**UG/L**	1	23-Nov-2020 14:01
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	23-Nov-2020 14:01
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 14:01
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 14:01
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 14:01
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 14:01
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	23-Nov-2020 14:01
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 14:01
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	23-Nov-2020 14:01
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	23-Nov-2020 14:01
n-Butylbenzene	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 14:01
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 14:01
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 14:01
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 14:01
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 14:01
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 14:01
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 14:01
Tetrachloroethene	**23**		**0.30**	**0.50**	**1.0**	**UG/L**	1	23-Nov-2020 14:01
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 14:01
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 14:01
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 14:01
Trichloroethene	**7.7**		**0.20**	**0.50**	**1.0**	**UG/L**	1	23-Nov-2020 14:01
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 14:01
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 14:01
Surr: 1,2-Dichloroethane-d4	*86.8*			**0**	*81-118*	*%REC*	*1*	*23-Nov-2020 14:01*
Surr: 4-Bromofluorobenzene	*87.9*			**0**	*85-114*	*%REC*	*1*	*23-Nov-2020 14:01*
Surr: Dibromofluoromethane	*90.9*			**0**	*80-119*	*%REC*	*1*	*23-Nov-2020 14:01*
Surr: Toluene-d8	*103*			**0**	*89-112*	*%REC*	*1*	*23-Nov-2020 14:01*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: YP
Chloride	**16.8**		**0.200**	**0.500**	**0.500**	**mg/L**	1	11-Nov-2020 22:00
Nitrogen, Nitrate (As N)	**0.228**		**0.0300**	**0.100**	**0.100**	**mg/L**	1	11-Nov-2020 22:00
Sulfate	**73.2**		**0.200**	**0.500**	**0.500**	**mg/L**	1	11-Nov-2020 22:00
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUBCA
Subcontract Analysis	See Attached		0	0		NA	1	24-Nov-2020 16:51

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 29-Nov-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
Sample ID: 35BWW14-201110
Collection Date: 10-Nov-2020 09:00

ANALYTICAL REPORT
WorkOrder:HS20110527
Lab ID:HS20110527-13
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	25-Nov-2020 10:35

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 29-Nov-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
Sample ID: 35BWW15-201110
Collection Date: 10-Nov-2020 09:50

ANALYTICAL REPORT
WorkOrder:HS20110527
Lab ID:HS20110527-14
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 14:22
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 14:22
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 14:22
1,1,2-Trichlor-1,2,2-trifluoroethane	**1.9**		**0.50**	**1.0**	**1.0**	**UG/L**	1	23-Nov-2020 14:22
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 14:22
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 14:22
1,1-Dichloroethene	**0.74**	J	**0.20**	**0.50**	**1.0**	**UG/L**	1	23-Nov-2020 14:22
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 14:22
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 14:22
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 14:22
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 14:22
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 14:22
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 14:22
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 14:22
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 14:22
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 14:22
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 14:22
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 14:22
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 14:22
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 14:22
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 14:22
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 14:22
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	23-Nov-2020 14:22
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 14:22
2-Hexanone	2.0	U	1.0	2.0	2.0	UG/L	1	23-Nov-2020 14:22
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 14:22
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 14:22
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	UG/L	1	23-Nov-2020 14:22
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	23-Nov-2020 14:22
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 14:22
Bromobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 14:22
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 14:22
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 14:22
Bromoform	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 14:22
Bromomethane	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 14:22
Carbon disulfide	2.0	U	0.60	2.0	2.0	UG/L	1	23-Nov-2020 14:22
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 14:22
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 14:22

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 29-Nov-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
Sample ID: 35BWW15-201110
Collection Date: 10-Nov-2020 09:50

ANALYTICAL REPORT
WorkOrder:HS20110527
Lab ID:HS20110527-14
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 14:22
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 14:22
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 14:22
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 14:22
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	23-Nov-2020 14:22
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 14:22
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 14:22
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 14:22
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 14:22
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	23-Nov-2020 14:22
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 14:22
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	23-Nov-2020 14:22
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	23-Nov-2020 14:22
n-Butylbenzene	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 14:22
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 14:22
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 14:22
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 14:22
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 14:22
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 14:22
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 14:22
Tetrachloroethene	**11**		**0.30**	**0.50**	**1.0**	**UG/L**	1	23-Nov-2020 14:22
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 14:22
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 14:22
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 14:22
Trichloroethene	**5.4**		**0.20**	**0.50**	**1.0**	**UG/L**	1	23-Nov-2020 14:22
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 14:22
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 14:22
Surr: 1,2-Dichloroethane-d4	*86.5*			**0**	*81-118*	*%REC*	*1*	*23-Nov-2020 14:22*
Surr: 4-Bromofluorobenzene	*89.4*			**0**	*85-114*	*%REC*	*1*	*23-Nov-2020 14:22*
Surr: Dibromofluoromethane	*90.3*			**0**	*80-119*	*%REC*	*1*	*23-Nov-2020 14:22*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*1*	*23-Nov-2020 14:22*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 29-Nov-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
Sample ID: 35BWW23-201110
Collection Date: 10-Nov-2020 10:30

ANALYTICAL REPORT
WorkOrder:HS20110527
Lab ID:HS20110527-15
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 14:43
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 14:43
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 14:43
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 14:43
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 14:43
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 14:43
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 14:43
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 14:43
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 14:43
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 14:43
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 14:43
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 14:43
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 14:43
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 14:43
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 14:43
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 14:43
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 14:43
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 14:43
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 14:43
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 14:43
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 14:43
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 14:43
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	23-Nov-2020 14:43
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 14:43
2-Hexanone	2.0	U	1.0	2.0	2.0	UG/L	1	23-Nov-2020 14:43
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 14:43
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 14:43
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	UG/L	1	23-Nov-2020 14:43
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	23-Nov-2020 14:43
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 14:43
Bromobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 14:43
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 14:43
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 14:43
Bromoform	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 14:43
Bromomethane	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 14:43
Carbon disulfide	2.0	U	0.60	2.0	2.0	UG/L	1	23-Nov-2020 14:43
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 14:43
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 14:43
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 14:43

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 29-Nov-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
Sample ID: 35BWW23-201110
Collection Date: 10-Nov-2020 10:30

ANALYTICAL REPORT
WorkOrder:HS20110527
Lab ID:HS20110527-15
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 14:43
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 14:43
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 14:43
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	23-Nov-2020 14:43
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 14:43
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 14:43
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 14:43
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 14:43
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	23-Nov-2020 14:43
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 14:43
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	23-Nov-2020 14:43
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	23-Nov-2020 14:43
n-Butylbenzene	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 14:43
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 14:43
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 14:43
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 14:43
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 14:43
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 14:43
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 14:43
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 14:43
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 14:43
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 14:43
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 14:43
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 14:43
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 14:43
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 14:43
Surr: 1,2-Dichloroethane-d4	*88.1*			**0**	*81-118*	*%REC*	*1*	*23-Nov-2020 14:43*
Surr: 4-Bromofluorobenzene	*89.6*			**0**	*85-114*	*%REC*	*1*	*23-Nov-2020 14:43*
Surr: Dibromofluoromethane	*92.3*			**0**	*80-119*	*%REC*	*1*	*23-Nov-2020 14:43*
Surr: Toluene-d8	*103*			**0**	*89-112*	*%REC*	*1*	*23-Nov-2020 14:43*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: YP
Chloride	**22.8**		**0.200**	**0.500**	**0.500**	**mg/L**	1	11-Nov-2020 22:18
Nitrogen, Nitrate (As N)	**0.0485**	J	**0.0300**	**0.100**	**0.100**	**mg/L**	1	11-Nov-2020 22:18
Sulfate	**86.1**		**0.200**	**0.500**	**0.500**	**mg/L**	1	11-Nov-2020 22:18
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUBCA
Subcontract Analysis	See Attached		0	0		NA	1	24-Nov-2020 16:51
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	25-Nov-2020 10:35

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 29-Nov-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
Sample ID: 35BWW24-201110
Collection Date: 10-Nov-2020 11:20

ANALYTICAL REPORT
WorkOrder:HS20110527
Lab ID:HS20110527-16
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 15:04
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 15:04
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 15:04
1,1,2-Trichlor-1,2,2-trifluoroethane	**7.3**		**0.50**	**1.0**	**1.0**	**UG/L**	1	23-Nov-2020 15:04
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 15:04
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 15:04
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 15:04
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 15:04
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 15:04
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 15:04
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 15:04
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 15:04
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 15:04
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 15:04
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 15:04
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 15:04
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 15:04
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 15:04
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 15:04
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 15:04
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 15:04
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 15:04
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	23-Nov-2020 15:04
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 15:04
2-Hexanone	2.0	U	1.0	2.0	2.0	UG/L	1	23-Nov-2020 15:04
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 15:04
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 15:04
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	UG/L	1	23-Nov-2020 15:04
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	23-Nov-2020 15:04
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 15:04
Bromobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 15:04
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 15:04
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 15:04
Bromoform	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 15:04
Bromomethane	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 15:04
Carbon disulfide	2.0	U	0.60	2.0	2.0	UG/L	1	23-Nov-2020 15:04
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 15:04
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 15:04

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 29-Nov-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
Sample ID: 35BWW24-201110
Collection Date: 10-Nov-2020 11:20

ANALYTICAL REPORT
WorkOrder:HS20110527
Lab ID:HS20110527-16
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 15:04
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 15:04
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 15:04
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 15:04
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	23-Nov-2020 15:04
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 15:04
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 15:04
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 15:04
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 15:04
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	23-Nov-2020 15:04
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 15:04
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	23-Nov-2020 15:04
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	23-Nov-2020 15:04
n-Butylbenzene	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 15:04
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 15:04
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 15:04
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 15:04
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 15:04
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 15:04
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 15:04
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 15:04
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 15:04
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 15:04
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 15:04
Trichloroethene	**1.7**		**0.20**	**0.50**	**1.0**	**UG/L**	1	23-Nov-2020 15:04
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 15:04
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 15:04
Surr: 1,2-Dichloroethane-d4	*84.6*			**0**	*81-118*	*%REC*	*1*	*23-Nov-2020 15:04*
Surr: 4-Bromofluorobenzene	*88.9*			**0**	*85-114*	*%REC*	*1*	*23-Nov-2020 15:04*
Surr: Dibromofluoromethane	*88.2*			**0**	*80-119*	*%REC*	*1*	*23-Nov-2020 15:04*
Surr: Toluene-d8	*105*			**0**	*89-112*	*%REC*	*1*	*23-Nov-2020 15:04*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 29-Nov-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
Sample ID: 35BWW25-201110
Collection Date: 10-Nov-2020 12:15

ANALYTICAL REPORT
WorkOrder:HS20110527
Lab ID:HS20110527-17
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 15:25
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 15:25
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 15:25
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 15:25
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 15:25
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 15:25
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 15:25
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 15:25
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 15:25
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 15:25
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 15:25
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 15:25
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 15:25
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 15:25
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 15:25
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 15:25
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 15:25
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 15:25
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 15:25
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 15:25
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 15:25
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 15:25
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	23-Nov-2020 15:25
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 15:25
2-Hexanone	2.0	U	1.0	2.0	2.0	UG/L	1	23-Nov-2020 15:25
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 15:25
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 15:25
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	UG/L	1	23-Nov-2020 15:25
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	23-Nov-2020 15:25
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 15:25
Bromobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 15:25
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 15:25
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 15:25
Bromoform	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 15:25
Bromomethane	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 15:25
Carbon disulfide	2.0	U	0.60	2.0	2.0	UG/L	1	23-Nov-2020 15:25
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 15:25
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 15:25
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 15:25

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 29-Nov-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
Sample ID: 35BWW25-201110
Collection Date: 10-Nov-2020 12:15

ANALYTICAL REPORT
WorkOrder:HS20110527
Lab ID:HS20110527-17
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 15:25
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 15:25
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 15:25
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	23-Nov-2020 15:25
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 15:25
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 15:25
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 15:25
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 15:25
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	23-Nov-2020 15:25
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 15:25
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	23-Nov-2020 15:25
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	23-Nov-2020 15:25
n-Butylbenzene	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 15:25
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 15:25
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 15:25
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 15:25
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 15:25
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 15:25
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 15:25
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 15:25
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 15:25
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 15:25
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 15:25
Trichloroethene	**10**		**0.20**	**0.50**	**1.0**	**UG/L**	1	23-Nov-2020 15:25
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 15:25
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 15:25
Surr: 1,2-Dichloroethane-d4	*85.7*			**0**	*81-118*	*%REC*	*1*	*23-Nov-2020 15:25*
Surr: 4-Bromofluorobenzene	*87.2*			**0**	*85-114*	*%REC*	*1*	*23-Nov-2020 15:25*
Surr: Dibromofluoromethane	*88.6*			**0**	*80-119*	*%REC*	*1*	*23-Nov-2020 15:25*
Surr: Toluene-d8	*102*			**0**	*89-112*	*%REC*	*1*	*23-Nov-2020 15:25*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 29-Nov-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
Sample ID: Trip Blank-201110
Collection Date: 10-Nov-2020 00:00

ANALYTICAL REPORT
WorkOrder:HS20110527
Lab ID:HS20110527-18
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 13:19
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 13:19
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 13:19
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 13:19
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 13:19
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 13:19
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 13:19
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 13:19
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 13:19
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 13:19
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 13:19
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 13:19
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 13:19
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 13:19
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 13:19
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 13:19
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 13:19
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 13:19
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 13:19
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 13:19
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 13:19
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 13:19
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	23-Nov-2020 13:19
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 13:19
2-Hexanone	2.0	U	1.0	2.0	2.0	UG/L	1	23-Nov-2020 13:19
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 13:19
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 13:19
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	UG/L	1	23-Nov-2020 13:19
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	23-Nov-2020 13:19
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 13:19
Bromobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 13:19
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 13:19
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 13:19
Bromoform	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 13:19
Bromomethane	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 13:19
Carbon disulfide	2.0	U	0.60	2.0	2.0	UG/L	1	23-Nov-2020 13:19
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	UG/L	1	23-Nov-2020 13:19
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 13:19
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 13:19

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 29-Nov-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
Sample ID: Trip Blank-201110
Collection Date: 10-Nov-2020 00:00

ANALYTICAL REPORT
WorkOrder:HS20110527
Lab ID:HS20110527-18
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 13:19
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 13:19
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 13:19
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	23-Nov-2020 13:19
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 13:19
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 13:19
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 13:19
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 13:19
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	23-Nov-2020 13:19
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 13:19
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	23-Nov-2020 13:19
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	23-Nov-2020 13:19
n-Butylbenzene	1.0	U	0.40	1.0	1.0	UG/L	1	23-Nov-2020 13:19
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 13:19
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 13:19
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 13:19
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 13:19
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 13:19
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 13:19
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 13:19
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 13:19
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 13:19
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 13:19
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 13:19
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-Nov-2020 13:19
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	23-Nov-2020 13:19
Surr: 1,2-Dichloroethane-d4	*86.4*			**0**	*81-118*	*%REC*	*1*	*23-Nov-2020 13:19*
Surr: 4-Bromofluorobenzene	*90.7*			**0**	*85-114*	*%REC*	*1*	*23-Nov-2020 13:19*
Surr: Dibromofluoromethane	*92.0*			**0**	*80-119*	*%REC*	*1*	*23-Nov-2020 13:19*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*1*	*23-Nov-2020 13:19*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 29-Nov-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
WorkOrder: HS20110527

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R372517 (0)	**Test Name :** ANIONS BY SW9056A				**Matrix:** Groundwater	
HS20110527-11	35BWW26-201110	10 Nov 2020 07:20			11 Nov 2020 21:24	1
HS20110527-12	35BWW04-201110	10 Nov 2020 08:05			11 Nov 2020 21:42	1
HS20110527-13	35BWW14-201110	10 Nov 2020 09:00			11 Nov 2020 22:00	1
HS20110527-15	35BWW23-201110	10 Nov 2020 10:30			11 Nov 2020 22:18	1
Batch ID: R373216 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Groundwater	
HS20110527-01	35BWW01-201109	09 Nov 2020 07:25			22 Nov 2020 22:21	1
HS20110527-02	35BWW10-201109	09 Nov 2020 08:10			22 Nov 2020 22:42	1
HS20110527-03	35BWW05-201109	09 Nov 2020 08:55			22 Nov 2020 23:04	1
HS20110527-04	LHSMW58-201109	09 Nov 2020 09:40			22 Nov 2020 22:00	1
HS20110527-05	35BWW11-201109	09 Nov 2020 10:25			22 Nov 2020 23:25	1
HS20110527-06	35BWW20-201109	09 Nov 2020 11:10			22 Nov 2020 23:46	1
HS20110527-07	35BWW20-201109-FD	09 Nov 2020 11:10			23 Nov 2020 00:07	1
HS20110527-08	35BWW09-201109	09 Nov 2020 11:55			23 Nov 2020 00:28	1
HS20110527-09	35BWW19-201109	09 Nov 2020 12:40			23 Nov 2020 00:49	1
HS20110527-10	35BWW18-201109	09 Nov 2020 13:25			23 Nov 2020 01:10	1
Batch ID: R373272 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Groundwater	
HS20110527-11	35BWW26-201110	10 Nov 2020 07:20			23 Nov 2020 12:58	1
HS20110527-12	35BWW04-201110	10 Nov 2020 08:05			23 Nov 2020 13:40	1
HS20110527-13	35BWW14-201110	10 Nov 2020 09:00			23 Nov 2020 14:01	1
HS20110527-14	35BWW15-201110	10 Nov 2020 09:50			23 Nov 2020 14:22	1
HS20110527-15	35BWW23-201110	10 Nov 2020 10:30			23 Nov 2020 14:43	1
HS20110527-16	35BWW24-201110	10 Nov 2020 11:20			23 Nov 2020 15:04	1
HS20110527-17	35BWW25-201110	10 Nov 2020 12:15			23 Nov 2020 15:25	1
HS20110527-18	Trip Blank-201110	10 Nov 2020 00:00			23 Nov 2020 13:19	1
Batch ID: R373337 (0)	**Test Name :** SUBCONTRACT ANALYSIS - RSK				**Matrix:** Groundwater	
HS20110527-11	35BWW26-201110	10 Nov 2020 07:20			24 Nov 2020 16:51	1
HS20110527-12	35BWW04-201110	10 Nov 2020 08:05			24 Nov 2020 16:51	1
HS20110527-13	35BWW14-201110	10 Nov 2020 09:00			24 Nov 2020 16:51	1
HS20110527-15	35BWW23-201110	10 Nov 2020 10:30			24 Nov 2020 16:51	1
Batch ID: R373378 (0)	**Test Name :** SUBCONTRACT ANALYSIS - TOC ANALYSIS				**Matrix:** Groundwater	
HS20110527-11	35BWW26-201110	10 Nov 2020 07:20			25 Nov 2020 10:35	1
HS20110527-12	35BWW04-201110	10 Nov 2020 08:05			25 Nov 2020 10:35	1
HS20110527-13	35BWW14-201110	10 Nov 2020 09:00			25 Nov 2020 10:35	1
HS20110527-15	35BWW23-201110	10 Nov 2020 10:30			25 Nov 2020 10:35	1

ALS Houston, US Date: 29-Nov-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
WorkOrder: HS20110527

QC BATCH REPORT

Batch ID: R373216 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-201122** Units: **UG/L** Analysis Date: **22-Nov-2020 21:39**
Client ID: Run ID: **VOA6_373216** SeqNo: **5846645** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	0.50	1.0								U
1,1,1-Trichloroethane	0.50	1.0								U
1,1,2,2-Tetrachloroethane	1.0	1.0								U
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	1.0								U
1,1,2-Trichloroethane	0.50	1.0								U
1,1-Dichloroethane	0.50	1.0								U
1,1-Dichloroethene	0.50	1.0								U
1,1-Dichloropropene	0.50	1.0								U
1,2,3-Trichlorobenzene	1.0	1.0								U
1,2,3-Trichloropropane	1.0	1.0								U
1,2,4-Trichlorobenzene	1.0	1.0								U
1,2,4-Trimethylbenzene	0.50	1.0								U
1,2-Dibromo-3-chloropropane	0.50	1.0								U
1,2-Dibromoethane	0.50	1.0								U
1,2-Dichlorobenzene	1.0	1.0								U
1,2-Dichloroethane	0.50	1.0								U
1,2-Dichloropropane	1.0	1.0								U
1,3,5-Trimethylbenzene	0.50	1.0								U
1,3-Dichlorobenzene	1.0	1.0								U
1,3-Dichloropropane	0.50	1.0								U
1,4-Dichlorobenzene	1.0	1.0								U
2,2-Dichloropropane	0.50	1.0								U
2-Butanone	1.0	2.0								U
2-Chlorotoluene	0.50	1.0								U
2-Hexanone	2.0	2.0								U
4-Chlorotoluene	1.0	1.0								U
4-Isopropyltoluene	0.50	1.0								U
4-Methyl-2-pentanone	2.0	2.0								U
Acetone	1.0	2.0								U
Benzene	0.50	1.0								U
Bromobenzene	1.0	1.0								U
Bromochloromethane	0.50	1.0								U
Bromodichloromethane	0.50	1.0								U
Bromoform	1.0	1.0								U

ALS Houston, US Date: 29-Nov-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
WorkOrder: HS20110527

QC BATCH REPORT

Batch ID: R373216 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-201122** Units: **UG/L** Analysis Date: **22-Nov-2020 21:39**
Client ID: Run ID: **VOA6_373216** SeqNo: **5846645** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromomethane	1.0	1.0								U
Carbon disulfide	2.0	2.0								U
Carbon tetrachloride	1.0	1.0								U
Chlorobenzene	0.50	1.0								U
Chloroethane	0.50	1.0								U
Chloroform	0.50	1.0								U
Chloromethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
cis-1,3-Dichloropropene	0.50	1.0								U
Dibromochloromethane	0.50	1.0								U
Dibromomethane	0.50	1.0								U
Dichlorodifluoromethane	0.50	1.0								U
Ethylbenzene	0.50	1.0								U
Hexachlorobutadiene	1.0	1.0								U
Isopropylbenzene	0.50	1.0								U
m,p-Xylene	1.0	2.0								U
Methylene chloride	1.0	2.0								U
Naphthalene	0.50	1.0								U
n-Butylbenzene	1.0	1.0								U
n-Propylbenzene	0.50	1.0								U
o-Xylene	0.50	1.0								U
sec-Butylbenzene	0.50	1.0								U
Styrene	0.50	1.0								U
tert-Butylbenzene	0.50	1.0								U
Tetrachloroethene	0.50	1.0								U
Toluene	0.50	1.0								U
trans-1,2-Dichloroethene	0.50	1.0								U
trans-1,3-Dichloropropene	0.50	1.0								U
Trichloroethene	0.50	1.0								U
Trichlorofluoromethane	0.50	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*43.18*	*1.0*	*50*	*0*	*86.4*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*44.98*	*1.0*	*50*	*0*	*90.0*	*85 - 114*				
Surr: Dibromofluoromethane	*44.59*	*1.0*	*50*	*0*	*89.2*	*80 - 119*				

ALS Houston, US Date: 29-Nov-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
WorkOrder: HS20110527

QC BATCH REPORT

Batch ID: R373216 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-201122** Units: **UG/L** Analysis Date: **22-Nov-2020 21:39**
Client ID: Run ID: **VOA6_373216** SeqNo: **5846645** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*51.59*	*1.0*	*50*	*0*	*103*	*89 - 112*				

ALS Houston, US Date: 29-Nov-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
WorkOrder: HS20110527

QC BATCH REPORT

Batch ID: R373216 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-201122** Units: **UG/L** Analysis Date: **22-Nov-2020 20:57**
Client ID: Run ID: **VOA6_373216** SeqNo: **5846644** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	18.83	1.0	20	0	94.1	78 - 124				
1,1,1-Trichloroethane	21.95	1.0	20	0	110	74 - 131				
1,1,2,2-Tetrachloroethane	22.4	1.0	20	0	112	71 - 121				
1,1,2-Trichlor-1,2,2-trifluoroethane	20.64	1.0	20	0	103	70 - 136				
1,1,2-Trichloroethane	19.87	1.0	20	0	99.3	80 - 119				
1,1-Dichloroethane	20.16	1.0	20	0	101	77 - 125				
1,1-Dichloroethene	20.6	1.0	20	0	103	71 - 131				
1,1-Dichloropropene	20.02	1.0	20	0	100	78 - 125				
1,2,3-Trichlorobenzene	25.29	1.0	20	0	126	69 - 129				
1,2,3-Trichloropropane	20.96	1.0	20	0	105	73 - 122				
1,2,4-Trichlorobenzene	22.85	1.0	20	0	114	69 - 130				
1,2,4-Trimethylbenzene	20.93	1.0	20	0	105	76 - 124				
1,2-Dibromo-3-chloropropane	23.76	1.0	20	0	119	62 - 128				
1,2-Dibromoethane	20.02	1.0	20	0	100	77 - 121				
1,2-Dichlorobenzene	20.25	1.0	20	0	101	80 - 119				
1,2-Dichloroethane	20.27	1.0	20	0	101	73 - 128				
1,2-Dichloropropane	19.38	1.0	20	0	96.9	78 - 122				
1,3,5-Trimethylbenzene	19.8	1.0	20	0	99.0	75 - 124				
1,3-Dichlorobenzene	21.07	1.0	20	0	105	80 - 119				
1,3-Dichloropropane	20.29	1.0	20	0	101	80 - 119				
1,4-Dichlorobenzene	21.39	1.0	20	0	107	79 - 118				
2,2-Dichloropropane	19.9	1.0	20	0	99.5	60 - 139				
2-Butanone	41.5	2.0	40	0	104	56 - 143				
2-Chlorotoluene	20.86	1.0	20	0	104	79 - 122				
2-Hexanone	38.35	2.0	40	0	95.9	57 - 139				
4-Chlorotoluene	19.85	1.0	20	0	99.3	78 - 122				
4-Isopropyltoluene	21.15	1.0	20	0	106	77 - 127				
4-Methyl-2-pentanone	39.72	2.0	40	0	99.3	67 - 130				
Acetone	37.86	2.0	40	0	94.7	39 - 160				
Benzene	20.33	1.0	20	0	102	79 - 120				
Bromobenzene	21.07	1.0	20	0	105	80 - 120				
Bromochloromethane	21.63	1.0	20	0	108	78 - 123				
Bromodichloromethane	20.22	1.0	20	0	101	79 - 125				
Bromoform	19.34	1.0	20	0	96.7	66 - 130				

ALS Houston, US Date: 29-Nov-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
WorkOrder: HS20110527

QC BATCH REPORT

Batch ID: R373216 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

LCS Sample ID: **VLCSW-201122** Units: **UG/L** Analysis Date: **22-Nov-2020 20:57**
Client ID: Run ID: **VOA6_373216** SeqNo: **5846644** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromomethane	22.78	1.0	20	0	114	53 - 141				
Carbon disulfide	42.27	2.0	40	0	106	64 - 133				
Carbon tetrachloride	19.88	1.0	20	0	99.4	72 - 136				
Chlorobenzene	19.21	1.0	20	0	96.0	82 - 118				
Chloroethane	19.19	1.0	20	0	95.9	60 - 138				
Chloroform	19.96	1.0	20	0	99.8	79 - 124				
Chloromethane	20.49	1.0	20	0	102	50 - 139				
cis-1,2-Dichloroethene	20.7	1.0	20	0	103	78 - 123				
cis-1,3-Dichloropropene	19.82	1.0	20	0	99.1	75 - 124				
Dibromochloromethane	19.92	1.0	20	0	99.6	74 - 126				
Dibromomethane	19.69	1.0	20	0	98.5	79 - 123				
Dichlorodifluoromethane	20.89	1.0	20	0	104	32 - 152				
Ethylbenzene	19.84	1.0	20	0	99.2	79 - 121				
Hexachlorobutadiene	24.3	1.0	20	0	122	66 - 134				
Isopropylbenzene	20.16	1.0	20	0	101	72 - 131				
m,p-Xylene	38.43	2.0	40	0	96.1	80 - 121				
Methylene chloride	20.16	2.0	20	0	101	74 - 124				
Naphthalene	23.77	1.0	20	0	119	61 - 128				
n-Butylbenzene	20.97	1.0	20	0	105	75 - 128				
n-Propylbenzene	20.56	1.0	20	0	103	76 - 126				
o-Xylene	19.32	1.0	20	0	96.6	78 - 122				
sec-Butylbenzene	21.95	1.0	20	0	110	77 - 126				
Styrene	19.27	1.0	20	0	96.4	78 - 123				
tert-Butylbenzene	21.65	1.0	20	0	108	78 - 124				
Tetrachloroethene	20.33	1.0	20	0	102	74 - 129				
Toluene	19.95	1.0	20	0	99.7	80 - 121				
trans-1,2-Dichloroethene	21.1	1.0	20	0	106	75 - 124				
trans-1,3-Dichloropropene	20.45	1.0	20	0	102	73 - 127				
Trichloroethene	20.24	1.0	20	0	101	79 - 123				
Trichlorofluoromethane	19.76	1.0	20	0	98.8	65 - 141				
Vinyl chloride	20.79	1.0	20	0	104	58 - 137				
Surr: 1,2-Dichloroethane-d4	*53.22*	*1.0*	*50*	*0*	*106*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*48.53*	*1.0*	*50*	*0*	*97.1*	*85 - 114*				
Surr: Dibromofluoromethane	*54.56*	*1.0*	*50*	*0*	*109*	*80 - 119*				

ALS Houston, US Date: 29-Nov-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
WorkOrder: HS20110527

QC BATCH REPORT

Batch ID: R373216 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-201122** Units: **UG/L** Analysis Date: **22-Nov-2020 20:57**
Client ID: Run ID: **VOA6_373216** SeqNo: **5846644** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*49.9*	*1.0*	*50*	*0*	*99.8*	*89 - 112*				

ALS Houston, US Date: 29-Nov-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
WorkOrder: HS20110527

QC BATCH REPORT

Batch ID: R373216 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS20110527-04MS** Units: **UG/L** Analysis Date: **23-Nov-2020 01:31**
Client ID: **LHSMW58-201109** Run ID: **VOA6_373216** SeqNo: **5846656** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	17.1	1.0	20	0	85.5	78 - 124				
1,1,1-Trichloroethane	18	1.0	20	0	90.0	74 - 131				
1,1,2,2-Tetrachloroethane	19.55	1.0	20	0	97.7	71 - 121				
1,1,2-Trichlor-1,2,2-trifluoroethane	17.21	1.0	20	0	86.1	70 - 136				
1,1,2-Trichloroethane	17.39	1.0	20	0	86.9	80 - 119				
1,1-Dichloroethane	16.18	1.0	20	0	80.9	77 - 125				
1,1-Dichloroethene	17.18	1.0	20	0	85.9	71 - 131				
1,1-Dichloropropene	17.01	1.0	20	0	85.1	78 - 125				
1,2,3-Trichlorobenzene	20.86	1.0	20	0	104	69 - 129				
1,2,3-Trichloropropane	19.37	1.0	20	0	96.8	73 - 122				
1,2,4-Trichlorobenzene	18.39	1.0	20	0	91.9	69 - 130				
1,2,4-Trimethylbenzene	19.93	1.0	20	0	99.7	76 - 124				
1,2-Dibromo-3-chloropropane	17.27	1.0	20	0	86.4	62 - 128				
1,2-Dibromoethane	17.06	1.0	20	0	85.3	77 - 121				
1,2-Dichlorobenzene	18.22	1.0	20	0	91.1	80 - 119				
1,2-Dichloroethane	17.03	1.0	20	0	85.1	73 - 128				
1,2-Dichloropropane	16.59	1.0	20	0	82.9	78 - 122				
1,3,5-Trimethylbenzene	18.63	1.0	20	0	93.1	75 - 124				
1,3-Dichlorobenzene	19.17	1.0	20	0	95.9	80 - 119				
1,3-Dichloropropane	18.34	1.0	20	0	91.7	80 - 119				
1,4-Dichlorobenzene	19.29	1.0	20	0	96.4	79 - 118				
2,2-Dichloropropane	14.79	1.0	20	0	73.9	60 - 139				
2-Butanone	29.41	2.0	40	0	73.5	56 - 143				
2-Chlorotoluene	18.14	1.0	20	0	90.7	79 - 122				
2-Hexanone	34.59	2.0	40	0	86.5	57 - 139				
4-Chlorotoluene	18.34	1.0	20	0	91.7	78 - 122				
4-Isopropyltoluene	19.5	1.0	20	0	97.5	77 - 127				
4-Methyl-2-pentanone	34.9	2.0	40	0	87.2	67 - 130				
Acetone	31.42	2.0	40	0	78.5	39 - 160				
Benzene	17.43	1.0	20	0	87.1	79 - 120				
Bromobenzene	19.54	1.0	20	0	97.7	80 - 120				
Bromochloromethane	15.74	1.0	20	0	78.7	78 - 123				
Bromodichloromethane	17.28	1.0	20	0	86.4	79 - 125				
Bromoform	18.07	1.0	20	0	90.3	66 - 130				

ALS Houston, US Date: 29-Nov-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
WorkOrder: HS20110527

QC BATCH REPORT

Batch ID: R373216 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS20110527-04MS** Units: **UG/L** Analysis Date: **23-Nov-2020 01:31**
Client ID: **LHSMW58-201109** Run ID: **VOA6_373216** SeqNo: **5846656** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Bromomethane	19.19	1.0	20	0	96.0	53 - 141				
Carbon disulfide	30.4	2.0	40	0	76.0	64 - 133				
Carbon tetrachloride	17.29	1.0	20	0	86.5	72 - 136				
Chlorobenzene	17.74	1.0	20	0	88.7	82 - 118				
Chloroethane	16.37	1.0	20	0	81.9	60 - 138				
Chloroform	15.81	1.0	20	0	79.1	79 - 124				
Chloromethane	14.47	1.0	20	0	72.4	50 - 139				
cis-1,2-Dichloroethene	15.75	1.0	20	0	78.7	78 - 123				
cis-1,3-Dichloropropene	15.87	1.0	20	0	79.3	75 - 124				
Dibromochloromethane	17.46	1.0	20	0	87.3	74 - 126				
Dibromomethane	16.79	1.0	20	0	84.0	79 - 123				
Dichlorodifluoromethane	13.26	1.0	20	0	66.3	32 - 152				
Ethylbenzene	17.74	1.0	20	0	88.7	79 - 121				
Hexachlorobutadiene	19.58	1.0	20	0	97.9	66 - 134				
Isopropylbenzene	17.76	1.0	20	0	88.8	72 - 131				
m,p-Xylene	34.64	2.0	40	0	86.6	80 - 121				
Methylene chloride	15.15	2.0	20	0	75.7	74 - 124				
Naphthalene	19.31	1.0	20	0	96.6	61 - 128				
n-Butylbenzene	19.75	1.0	20	0	98.7	75 - 128				
n-Propylbenzene	19.35	1.0	20	0	96.7	76 - 126				
o-Xylene	17.64	1.0	20	0	88.2	78 - 122				
sec-Butylbenzene	20.58	1.0	20	0	103	77 - 126				
Styrene	17.13	1.0	20	0	85.7	78 - 123				
tert-Butylbenzene	19.32	1.0	20	0	96.6	78 - 124				
Tetrachloroethene	26.45	1.0	20	9.524	84.6	74 - 129				
Toluene	17.92	1.0	20	0	89.6	80 - 121				
trans-1,2-Dichloroethene	15.93	1.0	20	0	79.6	75 - 124				
trans-1,3-Dichloropropene	16.25	1.0	20	0	81.3	73 - 127				
Trichloroethene	17.91	1.0	20	0.8124	85.5	79 - 123				
Trichlorofluoromethane	16.78	1.0	20	0	83.9	65 - 141				
Vinyl chloride	15.94	1.0	20	0	79.7	58 - 137				
Surr: 1,2-Dichloroethane-d4	*45.47*	*1.0*	*50*	*0*	*90.9*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*47.09*	*1.0*	*50*	*0*	*94.2*	*85 - 114*				
Surr: Dibromofluoromethane	*46.63*	*1.0*	*50*	*0*	*93.3*	*80 - 119*				

ALS Houston, US Date: 29-Nov-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
WorkOrder: HS20110527

QC BATCH REPORT

Batch ID: R373216 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS20110527-04MS** Units: **UG/L** Analysis Date: **23-Nov-2020 01:31**
Client ID: **LHSMW58-201109** Run ID: **VOA6_373216** SeqNo: **5846656** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*50.6*	*1.0*	*50*	*0*	*101*	*89 - 112*				

ALS Houston, US Date: 29-Nov-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
WorkOrder: HS20110527

QC BATCH REPORT

Batch ID: R373216 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS20110527-04MSD** Units: **UG/L** Analysis Date: **23-Nov-2020 01:52**
Client ID: **LHSMW58-201109** Run ID: **VOA6_373216** SeqNo: **5846657** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	16.89	1.0	20	0	84.4	78 - 124	17.1	1.23	20	
1,1,1-Trichloroethane	16.99	1.0	20	0	84.9	74 - 131	18	5.77	20	
1,1,2,2-Tetrachloroethane	21.5	1.0	20	0	107	71 - 121	19.55	9.49	20	
1,1,2-Trichlor-1,2,2-trifluoroethane	16.42	1.0	20	0	82.1	70 - 136	17.21	4.71	20	
1,1,2-Trichloroethane	17.29	1.0	20	0	86.5	80 - 119	17.39	0.527	20	
1,1-Dichloroethane	16.33	1.0	20	0	81.6	77 - 125	16.18	0.906	20	
1,1-Dichloroethene	16.13	1.0	20	0	80.6	71 - 131	17.18	6.3	20	
1,1-Dichloropropene	16.11	1.0	20	0	80.6	78 - 125	17.01	5.44	20	
1,2,3-Trichlorobenzene	25.91	1.0	20	0	130	69 - 129	20.86	21.6	20	SR
1,2,3-Trichloropropane	21.03	1.0	20	0	105	73 - 122	19.37	8.22	20	
1,2,4-Trichlorobenzene	22.6	1.0	20	0	113	69 - 130	18.39	20.5	20	R
1,2,4-Trimethylbenzene	20.43	1.0	20	0	102	76 - 124	19.93	2.45	20	
1,2-Dibromo-3-chloropropane	21.19	1.0	20	0	106	62 - 128	17.27	20.4	20	R
1,2-Dibromoethane	17.57	1.0	20	0	87.8	77 - 121	17.06	2.92	20	
1,2-Dichlorobenzene	19.47	1.0	20	0	97.4	80 - 119	18.22	6.67	20	
1,2-Dichloroethane	17.1	1.0	20	0	85.5	73 - 128	17.03	0.408	20	
1,2-Dichloropropane	15.96	1.0	20	0	79.8	78 - 122	16.59	3.84	20	
1,3,5-Trimethylbenzene	19.55	1.0	20	0	97.7	75 - 124	18.63	4.82	20	
1,3-Dichlorobenzene	20.08	1.0	20	0	100	80 - 119	19.17	4.62	20	
1,3-Dichloropropane	18.75	1.0	20	0	93.8	80 - 119	18.34	2.23	20	
1,4-Dichlorobenzene	19.84	1.0	20	0	99.2	79 - 118	19.29	2.83	20	
2,2-Dichloropropane	14.43	1.0	20	0	72.1	60 - 139	14.79	2.45	20	
2-Butanone	30.24	2.0	40	0	75.6	56 - 143	29.41	2.8	20	
2-Chlorotoluene	19.33	1.0	20	0	96.6	79 - 122	18.14	6.35	20	
2-Hexanone	34.97	2.0	40	0	87.4	57 - 139	34.59	1.1	20	
4-Chlorotoluene	19.37	1.0	20	0	96.8	78 - 122	18.34	5.46	20	
4-Isopropyltoluene	20.34	1.0	20	0	102	77 - 127	19.5	4.23	20	
4-Methyl-2-pentanone	35.36	2.0	40	0	88.4	67 - 130	34.9	1.32	20	
Acetone	28.81	2.0	40	0	72.0	39 - 160	31.42	8.65	20	
Benzene	17.4	1.0	20	0	87.0	79 - 120	17.43	0.159	20	
Bromobenzene	20.39	1.0	20	0	102	80 - 120	19.54	4.29	20	
Bromochloromethane	15.22	1.0	20	0	76.1	78 - 123	15.74	3.35	20	S
Bromodichloromethane	17.59	1.0	20	0	87.9	79 - 125	17.28	1.77	20	
Bromoform	18.25	1.0	20	0	91.2	66 - 130	18.07	0.978	20	

ALS Houston, US Date: 29-Nov-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
WorkOrder: HS20110527

QC BATCH REPORT

Batch ID: R373216 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS20110527-04MSD** Units: **UG/L** Analysis Date: **23-Nov-2020 01:52**
Client ID: **LHSMW58-201109** Run ID: **VOA6_373216** SeqNo: **5846657** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Bromomethane	18.39	1.0	20	0	91.9	53 - 141	19.19	4.27	20	
Carbon disulfide	29.01	2.0	40	0	72.5	64 - 133	30.4	4.7	20	
Carbon tetrachloride	16.74	1.0	20	0	83.7	72 - 136	17.29	3.24	20	
Chlorobenzene	16.96	1.0	20	0	84.8	82 - 118	17.74	4.53	20	
Chloroethane	16.01	1.0	20	0	80.1	60 - 138	16.37	2.22	20	
Chloroform	15.84	1.0	20	0	79.2	79 - 124	15.81	0.179	20	
Chloromethane	13.97	1.0	20	0	69.8	50 - 139	14.47	3.58	20	
cis-1,2-Dichloroethene	15.63	1.0	20	0	78.2	78 - 123	15.75	0.721	20	
cis-1,3-Dichloropropene	15.62	1.0	20	0	78.1	75 - 124	15.87	1.59	20	
Dibromochloromethane	18.48	1.0	20	0	92.4	74 - 126	17.46	5.66	20	
Dibromomethane	17.37	1.0	20	0	86.8	79 - 123	16.79	3.36	20	
Dichlorodifluoromethane	12.27	1.0	20	0	61.4	32 - 152	13.26	7.75	20	
Ethylbenzene	17.93	1.0	20	0	89.6	79 - 121	17.74	1.05	20	
Hexachlorobutadiene	21.65	1.0	20	0	108	66 - 134	19.58	10	20	
Isopropylbenzene	17.6	1.0	20	0	88.0	72 - 131	17.76	0.942	20	
m,p-Xylene	34.55	2.0	40	0	86.4	80 - 121	34.64	0.258	20	
Methylene chloride	15.08	2.0	20	0	75.4	74 - 124	15.15	0.436	20	
Naphthalene	23.18	1.0	20	0	116	61 - 128	19.31	18.2	20	
n-Butylbenzene	20.26	1.0	20	0	101	75 - 128	19.75	2.59	20	
n-Propylbenzene	20.12	1.0	20	0	101	76 - 126	19.35	3.93	20	
o-Xylene	17.51	1.0	20	0	87.5	78 - 122	17.64	0.774	20	
sec-Butylbenzene	21.2	1.0	20	0	106	77 - 126	20.58	2.97	20	
Styrene	16.68	1.0	20	0	83.4	78 - 123	17.13	2.71	20	
tert-Butylbenzene	20.71	1.0	20	0	104	78 - 124	19.32	6.94	20	
Tetrachloroethene	27.16	1.0	20	9.524	88.2	74 - 129	26.45	2.65	20	
Toluene	17.86	1.0	20	0	89.3	80 - 121	17.92	0.353	20	
trans-1,2-Dichloroethene	15.58	1.0	20	0	77.9	75 - 124	15.93	2.2	20	
trans-1,3-Dichloropropene	16.89	1.0	20	0	84.5	73 - 127	16.25	3.87	20	
Trichloroethene	17.71	1.0	20	0.8124	84.5	79 - 123	17.91	1.1	20	
Trichlorofluoromethane	16.11	1.0	20	0	80.5	65 - 141	16.78	4.07	20	
Vinyl chloride	14.88	1.0	20	0	74.4	58 - 137	15.94	6.86	20	
Surr: 1,2-Dichloroethane-d4	*43.34*	*1.0*	*50*	*0*	*86.7*	*81 - 118*	*45.47*	*4.8*	*20*	
Surr: 4-Bromofluorobenzene	*46.29*	*1.0*	*50*	*0*	*92.6*	*85 - 114*	*47.09*	*1.72*	*20*	
Surr: Dibromofluoromethane	*45.67*	*1.0*	*50*	*0*	*91.3*	*80 - 119*	*46.63*	*2.08*	*20*	

ALS Houston, US Date: 29-Nov-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
WorkOrder: HS20110527

QC BATCH REPORT

Batch ID: R373216 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS20110527-04MSD** Units: **UG/L** Analysis Date: **23-Nov-2020 01:52**
Client ID: **LHSMW58-201109** Run ID: **VOA6_373216** SeqNo: **5846657** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*50.35*	*1.0*	*50*	*0*	*101*	*89 - 112*	*50.6*	*0.487*	*20*	

The following samples were analyzed in this batch:

HS20110527-01	HS20110527-02	HS20110527-03	HS20110527-04
HS20110527-05	HS20110527-06	HS20110527-07	HS20110527-08
HS20110527-09	HS20110527-10		

ALS Houston, US Date: 29-Nov-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
WorkOrder: HS20110527

QC BATCH REPORT

Batch ID: R373272 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLK-201123** Units: **UG/L** Analysis Date: **23-Nov-2020 12:37**
Client ID: Run ID: **VOA6_373272** SeqNo: **5848312** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	0.50	1.0								U
1,1,1-Trichloroethane	0.50	1.0								U
1,1,2,2-Tetrachloroethane	1.0	1.0								U
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	1.0								U
1,1,2-Trichloroethane	0.50	1.0								U
1,1-Dichloroethane	0.50	1.0								U
1,1-Dichloroethene	0.50	1.0								U
1,1-Dichloropropene	0.50	1.0								U
1,2,3-Trichlorobenzene	1.0	1.0								U
1,2,3-Trichloropropane	1.0	1.0								U
1,2,4-Trichlorobenzene	1.0	1.0								U
1,2,4-Trimethylbenzene	0.50	1.0								U
1,2-Dibromo-3-chloropropane	0.50	1.0								U
1,2-Dibromoethane	0.50	1.0								U
1,2-Dichlorobenzene	1.0	1.0								U
1,2-Dichloroethane	0.50	1.0								U
1,2-Dichloropropane	1.0	1.0								U
1,3,5-Trimethylbenzene	0.50	1.0								U
1,3-Dichlorobenzene	1.0	1.0								U
1,3-Dichloropropane	0.50	1.0								U
1,4-Dichlorobenzene	1.0	1.0								U
2,2-Dichloropropane	0.50	1.0								U
2-Butanone	1.0	2.0								U
2-Chlorotoluene	0.50	1.0								U
2-Hexanone	2.0	2.0								U
4-Chlorotoluene	1.0	1.0								U
4-Isopropyltoluene	0.50	1.0								U
4-Methyl-2-pentanone	2.0	2.0								U
Acetone	1.0	2.0								U
Benzene	0.50	1.0								U
Bromobenzene	1.0	1.0								U
Bromochloromethane	0.50	1.0								U
Bromodichloromethane	0.50	1.0								U
Bromoform	1.0	1.0								U

ALS Houston, US Date: 29-Nov-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
WorkOrder: HS20110527

QC BATCH REPORT

Batch ID: R373272 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLK-201123** Units: **UG/L** Analysis Date: **23-Nov-2020 12:37**
Client ID: Run ID: **VOA6_373272** SeqNo: **5848312** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromomethane	1.0	1.0								U
Carbon disulfide	2.0	2.0								U
Carbon tetrachloride	1.0	1.0								U
Chlorobenzene	0.50	1.0								U
Chloroethane	0.50	1.0								U
Chloroform	0.50	1.0								U
Chloromethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
cis-1,3-Dichloropropene	0.50	1.0								U
Dibromochloromethane	0.50	1.0								U
Dibromomethane	0.50	1.0								U
Dichlorodifluoromethane	0.50	1.0								U
Ethylbenzene	0.50	1.0								U
Hexachlorobutadiene	1.0	1.0								U
Isopropylbenzene	0.50	1.0								U
m,p-Xylene	1.0	2.0								U
Methylene chloride	1.0	2.0								U
Naphthalene	0.50	1.0								U
n-Butylbenzene	1.0	1.0								U
n-Propylbenzene	0.50	1.0								U
o-Xylene	0.50	1.0								U
sec-Butylbenzene	0.50	1.0								U
Styrene	0.50	1.0								U
tert-Butylbenzene	0.50	1.0								U
Tetrachloroethene	0.50	1.0								U
Toluene	0.50	1.0								U
trans-1,2-Dichloroethene	0.50	1.0								U
trans-1,3-Dichloropropene	0.50	1.0								U
Trichloroethene	0.50	1.0								U
Trichlorofluoromethane	0.50	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*42.87*	*1.0*	*50*	*0*	*85.7*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*44.97*	*1.0*	*50*	*0*	*89.9*	*85 - 114*				
Surr: Dibromofluoromethane	*44.14*	*1.0*	*50*	*0*	*88.3*	*80 - 119*				

ALS Houston, US Date: 29-Nov-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
WorkOrder: HS20110527

QC BATCH REPORT

Batch ID: R373272 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLK-201123** Units: **UG/L** Analysis Date: **23-Nov-2020 12:37**
Client ID: Run ID: **VOA6_373272** SeqNo: **5848312** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*51.72*	*1.0*	*50*	*0*	*103*	*89 - 112*				

ALS Houston, US Date: 29-Nov-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
WorkOrder: HS20110527

QC BATCH REPORT

Batch ID: R373272 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

LCS Sample ID: **VLCSW-201123** Units: **UG/L** Analysis Date: **23-Nov-2020 11:55**
Client ID: Run ID: **VOA6_373272** SeqNo: **5848311** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	17.82	1.0	20	0	89.1	78 - 124				
1,1,1-Trichloroethane	18.13	1.0	20	0	90.7	74 - 131				
1,1,2,2-Tetrachloroethane	21.56	1.0	20	0	108	71 - 121				
1,1,2-Trichlor-1,2,2-trifluoroethane	14.76	1.0	20	0	73.8	70 - 136				
1,1,2-Trichloroethane	18.74	1.0	20	0	93.7	80 - 119				
1,1-Dichloroethane	18.26	1.0	20	0	91.3	77 - 125				
1,1-Dichloroethene	18.12	1.0	20	0	90.6	71 - 131				
1,1-Dichloropropene	17.16	1.0	20	0	85.8	78 - 125				
1,2,3-Trichlorobenzene	24.95	1.0	20	0	125	69 - 129				
1,2,3-Trichloropropane	21.14	1.0	20	0	106	73 - 122				
1,2,4-Trichlorobenzene	22.78	1.0	20	0	114	69 - 130				
1,2,4-Trimethylbenzene	16.92	1.0	20	0	84.6	76 - 124				
1,2-Dibromo-3-chloropropane	19.81	1.0	20	0	99.0	62 - 128				
1,2-Dibromoethane	19.61	1.0	20	0	98.1	77 - 121				
1,2-Dichlorobenzene	18.71	1.0	20	0	93.5	80 - 119				
1,2-Dichloroethane	19.65	1.0	20	0	98.3	73 - 128				
1,2-Dichloropropane	18.82	1.0	20	0	94.1	78 - 122				
1,3,5-Trimethylbenzene	15.18	1.0	20	0	75.9	75 - 124				
1,3-Dichlorobenzene	18.78	1.0	20	0	93.9	80 - 119				
1,3-Dichloropropane	19.59	1.0	20	0	97.9	80 - 119				
1,4-Dichlorobenzene	18.83	1.0	20	0	94.1	79 - 118				
2,2-Dichloropropane	17.55	1.0	20	0	87.8	60 - 139				
2-Butanone	41.98	2.0	40	0	105	56 - 143				
2-Chlorotoluene	17.56	1.0	20	0	87.8	79 - 122				
2-Hexanone	39.91	2.0	40	0	99.8	57 - 139				
4-Chlorotoluene	17.12	1.0	20	0	85.6	78 - 122				
4-Isopropyltoluene	15.65	1.0	20	0	78.2	77 - 127				
4-Methyl-2-pentanone	38.82	2.0	40	0	97.0	67 - 130				
Acetone	44.13	2.0	40	0	110	39 - 160				
Benzene	18.56	1.0	20	0	92.8	79 - 120				
Bromobenzene	20.16	1.0	20	0	101	80 - 120				
Bromochloromethane	19.37	1.0	20	0	96.8	78 - 123				
Bromodichloromethane	19.14	1.0	20	0	95.7	79 - 125				
Bromoform	19.18	1.0	20	0	95.9	66 - 130				

ALS Houston, US Date: 29-Nov-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
WorkOrder: HS20110527

QC BATCH REPORT

Batch ID: R373272 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-201123** Units: **UG/L** Analysis Date: **23-Nov-2020 11:55**
Client ID: Run ID: **VOA6_373272** SeqNo: **5848311** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromomethane	20.55	1.0	20	0	103	53 - 141				
Carbon disulfide	35.25	2.0	40	0	88.1	64 - 133				
Carbon tetrachloride	16.47	1.0	20	0	82.4	72 - 136				
Chlorobenzene	17.68	1.0	20	0	88.4	82 - 118				
Chloroethane	16.92	1.0	20	0	84.6	60 - 138				
Chloroform	18.11	1.0	20	0	90.5	79 - 124				
Chloromethane	16.97	1.0	20	0	84.9	50 - 139				
cis-1,2-Dichloroethene	17.86	1.0	20	0	89.3	78 - 123				
cis-1,3-Dichloropropene	19.23	1.0	20	0	96.1	75 - 124				
Dibromochloromethane	20	1.0	20	0	100.0	74 - 126				
Dibromomethane	19.13	1.0	20	0	95.7	79 - 123				
Dichlorodifluoromethane	16.98	1.0	20	0	84.9	32 - 152				
Ethylbenzene	16.91	1.0	20	0	84.5	79 - 121				
Hexachlorobutadiene	17.29	1.0	20	0	86.5	66 - 134				
Isopropylbenzene	14.95	1.0	20	0	74.7	72 - 131				
m,p-Xylene	33.28	2.0	40	0	83.2	80 - 121				
Methylene chloride	18.17	2.0	20	0	90.8	74 - 124				
Naphthalene	25.57	1.0	20	0	128	61 - 128				
n-Butylbenzene	15.78	1.0	20	0	78.9	75 - 128				
n-Propylbenzene	15.86	1.0	20	0	79.3	76 - 126				
o-Xylene	17.69	1.0	20	0	88.4	78 - 122				
sec-Butylbenzene	15.72	1.0	20	0	78.6	77 - 126				
Styrene	17.1	1.0	20	0	85.5	78 - 123				
tert-Butylbenzene	15.69	1.0	20	0	78.5	78 - 124				
Tetrachloroethene	15.63	1.0	20	0	78.2	74 - 129				
Toluene	17.55	1.0	20	0	87.7	80 - 121				
trans-1,2-Dichloroethene	17.15	1.0	20	0	85.8	75 - 124				
trans-1,3-Dichloropropene	19.55	1.0	20	0	97.7	73 - 127				
Trichloroethene	17.74	1.0	20	0	88.7	79 - 123				
Trichlorofluoromethane	16.27	1.0	20	0	81.4	65 - 141				
Vinyl chloride	17.08	1.0	20	0	85.4	58 - 137				
Surr: 1,2-Dichloroethane-d4	*48.39*	*1.0*	*50*	*0*	*96.8*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*47.18*	*1.0*	*50*	*0*	*94.4*	*85 - 114*				
Surr: Dibromofluoromethane	*50.74*	*1.0*	*50*	*0*	*101*	*80 - 119*				

ALS Houston, US Date: 29-Nov-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
WorkOrder: HS20110527

QC BATCH REPORT

Batch ID: R373272 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-201123** Units: **UG/L** Analysis Date: **23-Nov-2020 11:55**
Client ID: Run ID: **VOA6_373272** SeqNo: **5848311** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*49.17*	*1.0*	*50*	*0*	*98.3*	*89 - 112*				

ALS Houston, US Date: 29-Nov-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
WorkOrder: HS20110527

QC BATCH REPORT

Batch ID: R373272 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MS Sample ID: **HS20110985-28MS** Units: **UG/L** Analysis Date: **23-Nov-2020 17:31**
Client ID: Run ID: **VOA6_373272** SeqNo: **5848326** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	22.54	1.0	20	2.818	98.6	78 - 124				
1,1,1-Trichloroethane	18.66	1.0	20	0	93.3	74 - 131				
1,1,2,2-Tetrachloroethane	22.31	1.0	20	0	112	71 - 121				
1,1,2-Trichlor-1,2,2-trifluoroethane	19.38	1.0	20	0	96.9	70 - 136				
1,1,2-Trichloroethane	29.52	1.0	20	10.65	94.4	80 - 119				
1,1-Dichloroethane	16.99	1.0	20	0	84.9	77 - 125				
1,1-Dichloroethene	18.15	1.0	20	0	90.7	71 - 131				
1,1-Dichloropropene	18.51	1.0	20	0	92.6	78 - 125				
1,2,3-Trichlorobenzene	26.82	1.0	20	0	134	69 - 129				S
1,2,3-Trichloropropane	22.18	1.0	20	0	111	73 - 122				
1,2,4-Trichlorobenzene	23.56	1.0	20	0	118	69 - 130				
1,2,4-Trimethylbenzene	23.4	1.0	20	0	117	76 - 124				
1,2-Dibromo-3-chloropropane	24.4	1.0	20	0	122	62 - 128				
1,2-Dibromoethane	18.44	1.0	20	0	92.2	77 - 121				
1,2-Dichlorobenzene	21.59	1.0	20	0	108	80 - 119				
1,2-Dichloroethane	17.79	1.0	20	0	88.9	73 - 128				
1,2-Dichloropropane	17.39	1.0	20	0	87.0	78 - 122				
1,3,5-Trimethylbenzene	21.02	1.0	20	0	105	75 - 124				
1,3-Dichlorobenzene	22.07	1.0	20	0	110	80 - 119				
1,3-Dichloropropane	19.42	1.0	20	0	97.1	80 - 119				
1,4-Dichlorobenzene	22.85	1.0	20	0	114	79 - 118				
2,2-Dichloropropane	17.02	1.0	20	0	85.1	60 - 139				
2-Butanone	34.9	2.0	40	0	87.2	56 - 143				
2-Chlorotoluene	21.64	1.0	20	0	108	79 - 122				
2-Hexanone	39.81	2.0	40	0	99.5	57 - 139				
4-Chlorotoluene	21.2	1.0	20	0	106	78 - 122				
4-Isopropyltoluene	22.43	1.0	20	0	112	77 - 127				
4-Methyl-2-pentanone	36.49	2.0	40	0	91.2	67 - 130				
Acetone	40.08	2.0	40	0	100	39 - 160				
Benzene	18.4	1.0	20	0	92.0	79 - 120				
Bromobenzene	22.69	1.0	20	0	113	80 - 120				
Bromochloromethane	16.07	1.0	20	0	80.3	78 - 123				
Bromodichloromethane	17.83	1.0	20	0	89.2	79 - 125				
Bromoform	19.13	1.0	20	0	95.6	66 - 130				

ALS Houston, US Date: 29-Nov-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
WorkOrder: HS20110527

QC BATCH REPORT

Batch ID: R373272 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS20110985-28MS** Units: **UG/L** Analysis Date: **23-Nov-2020 17:31**
Client ID: Run ID: **VOA6_373272** SeqNo: **5848326** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromomethane	19.39	1.0	20	0	97.0	53 - 141				
Carbon disulfide	32.34	2.0	40	0	80.8	64 - 133				
Carbon tetrachloride	19.1	1.0	20	0	95.5	72 - 136				
Chlorobenzene	19.73	1.0	20	0	98.7	82 - 118				
Chloroethane	16.65	1.0	20	0	83.2	60 - 138				
Chloroform	18.54	1.0	20	1.714	84.1	79 - 124				
Chloromethane	14.3	1.0	20	0	71.5	50 - 139				
cis-1,2-Dichloroethene	16.81	1.0	20	0	84.0	78 - 123				
cis-1,3-Dichloropropene	16.71	1.0	20	0	83.5	75 - 124				
Dibromochloromethane	18.57	1.0	20	0	92.8	74 - 126				
Dibromomethane	17.78	1.0	20	0	88.9	79 - 123				
Dichlorodifluoromethane	14.47	1.0	20	0	72.4	32 - 152				
Ethylbenzene	19.88	1.0	20	0	99.4	79 - 121				
Hexachlorobutadiene	25.08	1.0	20	0	125	66 - 134				
Isopropylbenzene	20.35	1.0	20	0	102	72 - 131				
m,p-Xylene	38.57	2.0	40	0	96.4	80 - 121				
Methylene chloride	16.17	2.0	20	0	80.9	74 - 124				
Naphthalene	22.45	1.0	20	0	112	61 - 128				
n-Butylbenzene	22.46	1.0	20	0	112	75 - 128				
n-Propylbenzene	22.67	1.0	20	0	113	76 - 126				
o-Xylene	19.27	1.0	20	0	96.3	78 - 122				
sec-Butylbenzene	24.26	1.0	20	0	121	77 - 126				
Styrene	5.633	1.0	20	0	28.2	78 - 123				S
tert-Butylbenzene	22.59	1.0	20	0	113	78 - 124				
Tetrachloroethene	37.42	1.0	20	15.34	110	74 - 129				
Toluene	20.14	1.0	20	0	101	80 - 121				
trans-1,2-Dichloroethene	16.32	1.0	20	0	81.6	75 - 124				
trans-1,3-Dichloropropene	17.13	1.0	20	0	85.7	73 - 127				
Trichloroethene	175.8	1.0	20	150.6	126	79 - 123				SO
Trichlorofluoromethane	18.91	1.0	20	0	94.5	65 - 141				
Vinyl chloride	16.8	1.0	20	0	84.0	58 - 137				
Surr: 1,2-Dichloroethane-d4	*44*	*1.0*	*50*	*0*	*88.0*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*45.22*	*1.0*	*50*	*0*	*90.4*	*85 - 114*				
Surr: Dibromofluoromethane	*46.57*	*1.0*	*50*	*0*	*93.1*	*80 - 119*				

ALS Houston, US Date: 29-Nov-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
WorkOrder: HS20110527

QC BATCH REPORT

Batch ID: R373272 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS20110985-28MS** Units: **UG/L** Analysis Date: **23-Nov-2020 17:31**
Client ID: Run ID: **VOA6_373272** SeqNo: **5848326** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*51.46*	*1.0*	*50*	*0*	*103*	*89 - 112*				

ALS Houston, US Date: 29-Nov-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
WorkOrder: HS20110527

QC BATCH REPORT

Batch ID: R373272 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS20110985-28MSD** Units: **UG/L** Analysis Date: **23-Nov-2020 17:52**
Client ID: Run ID: **VOA6_373272** SeqNo: **5848327** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	20.64	1.0	20	2.818	89.1	78 - 124	22.54	8.84	20	
1,1,1-Trichloroethane	17.85	1.0	20	0	89.3	74 - 131	18.66	4.39	20	
1,1,2,2-Tetrachloroethane	20.87	1.0	20	0	104	71 - 121	22.31	6.66	20	
1,1,2-Trichlor-1,2,2-trifluoroethane	17.8	1.0	20	0	89.0	70 - 136	19.38	8.53	20	
1,1,2-Trichloroethane	28.54	1.0	20	10.65	89.5	80 - 119	29.52	3.38	20	
1,1-Dichloroethane	16.68	1.0	20	0	83.4	77 - 125	16.99	1.83	20	
1,1-Dichloroethene	16.32	1.0	20	0	81.6	71 - 131	18.15	10.6	20	
1,1-Dichloropropene	17.27	1.0	20	0	86.3	78 - 125	18.51	6.94	20	
1,2,3-Trichlorobenzene	27.06	1.0	20	0	135	69 - 129	26.82	0.873	20	S
1,2,3-Trichloropropane	18.84	1.0	20	0	94.2	73 - 122	22.18	16.3	20	
1,2,4-Trichlorobenzene	22.93	1.0	20	0	115	69 - 130	23.56	2.7	20	
1,2,4-Trimethylbenzene	20.3	1.0	20	0	101	76 - 124	23.4	14.2	20	
1,2-Dibromo-3-chloropropane	23.19	1.0	20	0	116	62 - 128	24.4	5.05	20	
1,2-Dibromoethane	17.56	1.0	20	0	87.8	77 - 121	18.44	4.9	20	
1,2-Dichlorobenzene	19.38	1.0	20	0	96.9	80 - 119	21.59	10.8	20	
1,2-Dichloroethane	17.47	1.0	20	0	87.4	73 - 128	17.79	1.78	20	
1,2-Dichloropropane	17.08	1.0	20	0	85.4	78 - 122	17.39	1.81	20	
1,3,5-Trimethylbenzene	18.92	1.0	20	0	94.6	75 - 124	21.02	10.5	20	
1,3-Dichlorobenzene	20.13	1.0	20	0	101	80 - 119	22.07	9.21	20	
1,3-Dichloropropane	18.59	1.0	20	0	92.9	80 - 119	19.42	4.38	20	
1,4-Dichlorobenzene	19.68	1.0	20	0	98.4	79 - 118	22.85	14.9	20	
2,2-Dichloropropane	16.21	1.0	20	0	81.1	60 - 139	17.02	4.87	20	
2-Butanone	35.35	2.0	40	0	88.4	56 - 143	34.9	1.3	20	
2-Chlorotoluene	19.08	1.0	20	0	95.4	79 - 122	21.64	12.5	20	
2-Hexanone	36.97	2.0	40	0	92.4	57 - 139	39.81	7.41	20	
4-Chlorotoluene	18.45	1.0	20	0	92.3	78 - 122	21.2	13.9	20	
4-Isopropyltoluene	20.29	1.0	20	0	101	77 - 127	22.43	10.1	20	
4-Methyl-2-pentanone	36.48	2.0	40	0	91.2	67 - 130	36.49	0.0236	20	
Acetone	36.65	2.0	40	0	91.6	39 - 160	40.08	8.94	20	
Benzene	17.84	1.0	20	0	89.2	79 - 120	18.4	3.07	20	
Bromobenzene	19.79	1.0	20	0	99.0	80 - 120	22.69	13.6	20	
Bromochloromethane	16.22	1.0	20	0	81.1	78 - 123	16.07	0.94	20	
Bromodichloromethane	17.89	1.0	20	0	89.5	79 - 125	17.83	0.343	20	
Bromoform	18.39	1.0	20	0	91.9	66 - 130	19.13	3.94	20	

ALS Houston, US Date: 29-Nov-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
WorkOrder: HS20110527

QC BATCH REPORT

Batch ID: R373272 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS20110985-28MSD** Units: **UG/L** Analysis Date: **23-Nov-2020 17:52**
Client ID: Run ID: **VOA6_373272** SeqNo: **5848327** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Bromomethane	17.82	1.0	20	0	89.1	53 - 141	19.39	8.47	20	
Carbon disulfide	30.34	2.0	40	0	75.9	64 - 133	32.34	6.36	20	
Carbon tetrachloride	18.14	1.0	20	0	90.7	72 - 136	19.1	5.16	20	
Chlorobenzene	17.8	1.0	20	0	89.0	82 - 118	19.73	10.3	20	
Chloroethane	15.56	1.0	20	0	77.8	60 - 138	16.65	6.76	20	
Chloroform	17.51	1.0	20	1.714	79.0	79 - 124	18.54	5.71	20	S
Chloromethane	13.94	1.0	20	0	69.7	50 - 139	14.3	2.54	20	
cis-1,2-Dichloroethene	15.95	1.0	20	0	79.8	78 - 123	16.81	5.23	20	
cis-1,3-Dichloropropene	16.37	1.0	20	0	81.8	75 - 124	16.71	2.04	20	
Dibromochloromethane	18.17	1.0	20	0	90.9	74 - 126	18.57	2.15	20	
Dibromomethane	18.25	1.0	20	0	91.3	79 - 123	17.78	2.59	20	
Dichlorodifluoromethane	13.47	1.0	20	0	67.4	32 - 152	14.47	7.16	20	
Ethylbenzene	18.68	1.0	20	0	93.4	79 - 121	19.88	6.23	20	
Hexachlorobutadiene	23.52	1.0	20	0	118	66 - 134	25.08	6.39	20	
Isopropylbenzene	18.83	1.0	20	0	94.2	72 - 131	20.35	7.76	20	
m,p-Xylene	35.84	2.0	40	0	89.6	80 - 121	38.57	7.33	20	
Methylene chloride	15.8	2.0	20	0	79.0	74 - 124	16.17	2.36	20	
Naphthalene	23.92	1.0	20	0	120	61 - 128	22.45	6.37	20	
n-Butylbenzene	20.53	1.0	20	0	103	75 - 128	22.46	8.99	20	
n-Propylbenzene	20.38	1.0	20	0	102	76 - 126	22.67	10.7	20	
o-Xylene	17.8	1.0	20	0	89.0	78 - 122	19.27	7.92	20	
sec-Butylbenzene	21.28	1.0	20	0	106	77 - 126	24.26	13.1	20	
Styrene	5.242	1.0	20	0	26.2	78 - 123	5.633	7.19	20	S
tert-Butylbenzene	20.43	1.0	20	0	102	78 - 124	22.59	10	20	
Tetrachloroethene	34.95	1.0	20	15.34	98.0	74 - 129	37.42	6.81	20	
Toluene	18.66	1.0	20	0	93.3	80 - 121	20.14	7.64	20	
trans-1,2-Dichloroethene	15.18	1.0	20	0	75.9	75 - 124	16.32	7.24	20	
trans-1,3-Dichloropropene	17.13	1.0	20	0	85.6	73 - 127	17.13	0.0315	20	
Trichloroethene	168	1.0	20	150.6	87.1	79 - 123	175.8	4.51	20	O
Trichlorofluoromethane	17.33	1.0	20	0	86.6	65 - 141	18.91	8.74	20	
Vinyl chloride	14.05	1.0	20	0	70.2	58 - 137	16.8	17.9	20	
Surr: 1,2-Dichloroethane-d4	*44.77*	*1.0*	*50*	*0*	*89.5*	*81 - 118*	*44*	*1.75*	*20*	
Surr: 4-Bromofluorobenzene	*46.47*	*1.0*	*50*	*0*	*92.9*	*85 - 114*	*45.22*	*2.71*	*20*	
Surr: Dibromofluoromethane	*46.06*	*1.0*	*50*	*0*	*92.1*	*80 - 119*	*46.57*	*1.1*	*20*	

ALS Houston, US Date: 29-Nov-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
WorkOrder: HS20110527

QC BATCH REPORT

Batch ID: R373272 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS20110985-28MSD** Units: **UG/L** Analysis Date: **23-Nov-2020 17:52**
Client ID: Run ID: **VOA6_373272** SeqNo: **5848327** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*50.43*	*1.0*	*50*	*0*	*101*	*89 - 112*	*51.46*	*2.02*	*20*	

The following samples were analyzed in this batch:

HS20110527-11	HS20110527-12	HS20110527-13	HS20110527-14
HS20110527-15	HS20110527-16	HS20110527-17	HS20110527-18

ALS Houston, US Date: 29-Nov-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
WorkOrder: HS20110527

QC BATCH REPORT

Batch ID: R372517 (0) **Instrument: ICS-Integrion** **Method: ANIONS BY SW9056A**

MBLK Sample ID: **MBLK-111120** Units: **mg/L** Analysis Date: **11-Nov-2020 18:24**
Client ID: Run ID: **ICS-Integrion_372517** SeqNo: **5829719** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	0.500	0.500								U
Nitrogen, Nitrate (As N)	0.100	0.100								U
Sulfate	0.500	0.500								U

LCS Sample ID: **LCS-111120** Units: **mg/L** Analysis Date: **11-Nov-2020 18:42**
Client ID: Run ID: **ICS-Integrion_372517** SeqNo: **5829720** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	20.42	0.500	20	0	102	80 - 120				
Nitrogen, Nitrate (As N)	4.058	0.100	4	0	101	80 - 120				
Sulfate	20.77	0.500	20	0	104	80 - 120				

MS Sample ID: **HS20101419-01MS** Units: **mg/L** Analysis Date: **12-Nov-2020 00:24**
Client ID: Run ID: **ICS-Integrion_372517** SeqNo: **5829733** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	1034	0.500	10	1053	-192	80 - 120				SEO
Nitrogen, Nitrate (As N)	2.06	0.100	2	0.0627	99.9	80 - 120				
Sulfate	204.1	0.500	10	201.2	29.4	80 - 120				SEO

MSD Sample ID: **HS20101419-01MSD** Units: **mg/L** Analysis Date: **12-Nov-2020 00:42**
Client ID: Run ID: **ICS-Integrion_372517** SeqNo: **5829734** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	1039	0.500	10	1053	-141	80 - 120	1034	0.49	20	SEO
Nitrogen, Nitrate (As N)	2.059	0.100	2	0.0627	99.8	80 - 120	2.06	0.034	20	
Sulfate	206.3	0.500	10	201.2	51.7	80 - 120	204.1	1.09	20	SEO

The following samples were analyzed in this batch: HS20110527-11 HS20110527-12 HS20110527-13 HS20110527-15

ALS Houston, US Date: 29-Nov-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
WorkOrder: **HS20110527**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL/SDL

Acronym	Description
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitaion Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	20-030-0	26-Mar-2021
California	2919, 2020-2021	30-Apr-2021
Dept of Defense	PJLA L20-507	22-Dec-2021
Florida	E87611-30-07/01/2020	30-Jun-2021
Illinois	2000322020-4	09-May-2021
Kansas	E-10352 2020-2021	31-Jul-2021
Kentucky	123043, 2020-2021	30-Apr-2021
Louisiana	03087, 2020-2021	30-Jun-2021
North Carolina	624-2020	31-Dec-2020
North Dakota	R-193 2020-2021	30-Apr-2021
Texas	T104704231-20-26	30-Apr-2021

ALS Houston, US Date: 29-Nov-20

Sample Receipt Checklist

Work Order ID: HS20110527 **Date/Time Received:** **11-Nov-2020 10:20**

Client Name: CBI-Houston **Received by:** **Jared R. Makan**

Completed By: */S/ Paresh M. Giga* (eSignature) 11-Nov-2020 16:29 (Date/Time) **Reviewed by:** */S/ RJ Modashia* (eSignature) 12-Nov-2020 15:30 (Date/Time)

Matrices: **GW/Water** Carrier name: **FedEx**

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	3 Page(s)
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	COC IDs:None
Samplers name present on COC?	Yes ☐	No ☑	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	

Temperature(s)/Thermometer(s):	1.2C U/c	IR31
Cooler(s)/Kit(s):	43790	
Date/Time sample(s) sent to storage:	11/11/2020 16:50	

Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:			

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

CHAIN OF CUSTODY

Name Of Lab Shipping To: ALS 10450 Stancliff Rd. Suite 210 Houston, TX. 77099 (281) 530-5656 ATTN: R.J Modashia

Project: APTIM
LONGHORN ARMY AMMN. PLANT (LHAAP)
GROUNDWATER TREATMENT PLANT (GWTP)
KARNACK, TEXAS

Project No. 501032

Job: **LHAAP 37 November 2020**

Prepared By: Scott Beesinger

P.O. Number

HS20110527
Aptim Environmental & Infrastucture, Inc.
Longhorn Army Ammunition Plant 37

Field Sample I.D. / Time	Sample Matrix	Date /	MS / MSD	No. OF CONTAINERS	VOC by SW 8260B	TOC by SM5310C	MEE by RSK 175	Carbon Dioxide by RSK 175	Anions (Chloride, Sulfate, and Nitrate) by SW9056						Remarks (Preservatives, etc.)	Lab I.D.#
					Analyses											
35BwW01-201109	WG	11/9/20/0725		3	X											
35BwW10-201109	WG	11/9/20/0810		3	X											
35BwW05-201109	WG	11/9/20/0855		3	X											
LHSmw58-201109	WG	11/9/20/0940		3	X											
LHSmw58-201109-MS	WG	11/9/20/0940		3	X											
LHSmw58-201109-MSD	WG	11/9/20/0940		3	X											
35BwW11-201109	WG	11/9/20/1025		3	X											
35BwW20-201109	WG	11/9/20/1110		3	X											

Additional Remarks: Standard TAT on all parameters. Please email results to Susan.Huang@aptim.com and invoices to fedinvoices@aptim.com

Relinquished By:	Date	Time	Received By:	Date	Time	Relinquished By:	Date	Time	Received By:	Date	Time
Scott Beesinger	11/10/20	1430	JM	11/11/2020	10:20						

For Lab Use Only

Received At Lab By:	Date	Time	Airbill No.	Opened By:	Date	Time	Temp of Container	Seal No.	Condition

Remarks:

43790 VIC. 1.20 42Y C11-00

(Word) S:\1-ces\Forms\Chain of Custody - BiWeekly

CHAIN OF CUSTODY

Name Of Lab Shipping To: ALS 10450 Stancliff Rd. Suite 210 Houston, TX. 77099 (281) 530-5656 ATTN: R.J Modashia

Page 1 of 1

Project: APTIM LONGHORN ARMY AMMN. PLANT (LHAAP) GROUNDWATER TREATMENT PLANT (GWTP) KARNACK, TEXAS	Project No. 501032
Job: **LHAAP 37 November 2020**	
Prepared By: Scott Beesinger	P.O. Number

HS20110527

Aptim Environmental & Infrastucture, Inc.

Longhorn Army Ammunition Plant 37

Field Sample I.D.	Sample Matrix	Date / Time	MS / MSD	No. OF CONTAINERS	Analyses: VOC by SW 8260B	TOC by SM5310C	MEE by RSK 175	Carbon Dioxide by RSK 175	Anions (Chloride, Sulfate, and Nitrate) by SW9056					Remarks (Preservatives, etc.)	Lab I.D.#
35BWW20-201109-FD	WG	11/9/20/1110		3	X										
35BWW09-201109	WG	11/9/20/1155		3	X										
35WW19-201109	WG	11/9/20/1240		3	X										
35WW18-201109	WG	11/9/20/1325		3	X										
35BWW26-201110	WG	11/10/20/0720		12	X	X	X	X	X						
35BWW04-201110	WG	11/10/20/0805		12	X	X	X	X	X						
35BWW14-201110	WG	11/10/20/0900		12	X	X	X	X	X						
35BWW15-201110	WG	11/10/20/0950		3	X										

Additional Remarks: Standard TAT on all parameters. Please email results to Susan.Huang@aptim.com and invoices to fedinvoices@aptim.com

Relinquished By:	Date	Time	Received By:	Date	Time	Relinquished By:	Date	Time	Received By:	Date	Time
Scott Beesinger	11/10/20	1430	Jim F	11/11/2020	10:20						

For Lab Use Only

Received At Lab By:	Date	Time	Airbill No.	Opened By:	Date	Time	Temp of Container	Seal No.	Condition

Remarks:

(Word) S:\1-ces\Forms\Chain of Custody - BiWeekly

REV01

CHAIN OF CUSTODY

Name Of Lab Shipping To: ALS 10450 Stancliff Rd. Suite 210 Houston, TX. 77099 (281) 530-5656 ATTN: R.J Modashia

Project: APTIM
LONGHORN ARMY AMMN. PLANT (LHAAP)
GROUNDWATER TREATMENT PLANT (GWTP)
KARNACK, TEXAS

Project No. 501032

Job: **LHAAP 37 November 2020**

Prepared By: Scott Beesinger

P.O. Number

HS20110527
Aptim Environmental & Infrastucture, Inc.
Longhorn Army Ammunition Plant 37

Field Sample I.D. / Time	Sample Matrix	Date /	MS / MSD	No. OF CONTAINERS	VOC by SW 8260B	TOC by SM5310C	MEE by RSK 175	Carbon Dioxide by RSK 175	Anions (Chloride, Sulfate, and Nitrate) by SW9056	Remarks (Preservatives, etc.)	Lab I.D.#
35BWW23-201110	WG	11/10/20/1030		12	X	X	X	X	X		
35BWW24-201110	WG	11/10/20/1120		3	X						
35BWW25-201110	WG	11/10/20/1215		3	X						
TRIP BLANK-201110	WG	11/10/20		2	X						

Additional Remarks: Standard TAT on all parameters. Please email results to Susan.Huang@aptim.com and invoices to fedinvoices@aptim.com

Relinquished By:	Date	Time	Received By:	Date	Time	Relinquished By:	Date	Time	Received By:	Date	Time
Scott Beesinger	11/10/20	1430	JM	11/11/2020	10:20						

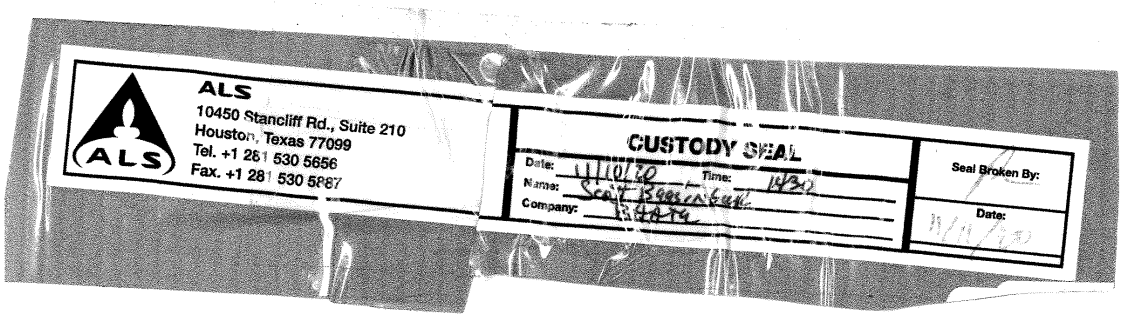
For Lab Use Only

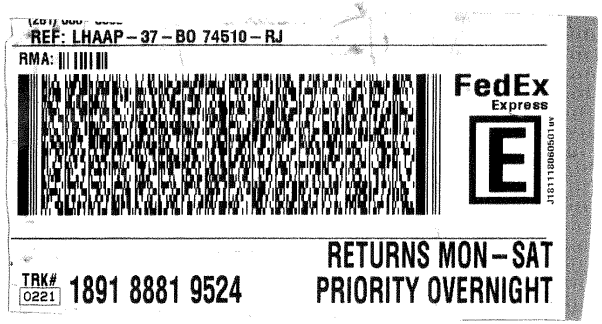
Received At Lab By:	Date	Time	Airbill No.	Opened By:	Date	Time	Temp of Container	Seal No.	Condition

Remarks:

(Word) S:\1-ces\Forms\Chain of Custody - BiWeekly

REV01


ALS
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887
CUSTODY SEAL
Date: 4/10/20
Time: 1430
Name: Scott Beasley
Company:
Seal Broken By:
Date:


REF: LHAAP – 37 – BO 74510 – RJ
RMA:
FedEx
Express
TRK#
0221
1891 8881 9524
RETURNS MON – SAT
PRIORITY OVERNIGHT

43790

ALS Environmental
ALS Group USA, Corp
1317 South 13th Avenue
Kelso, WA 98626
T : +1 360 577 7222
F : +1 360 636 1068
www.alsglobal.com

November 25, 2020

Analytical Report for Service Request No: K2010530

RJ Modashia
ALS Laboratory Group
10450 Stancliff Road
Suite 210
Houston, TX 77099-4338

RE: HS20110527

Dear RJ,

Enclosed are the results of the sample(s) submitted to our laboratory November 13, 2020
For your reference, these analyses have been assigned our service request number **K2010530.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please contact me if you have any questions. My extension is 3350. You may also contact me via email at Kelley.Lovejoy@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Kelley Lovejoy

Kelley Lovejoy
Project Manager

RIGHT SOLUTIONS | RIGHT PARTNER

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ALS Group USA, Corp
1317 South 13th Avenue
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www.alsglobal.com

Table of Contents

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General Chemistry

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LOD	Limit of Detection
LOQ	Limit of Quantitation
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.
H	The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
J	The result is an estimated value.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimated value.
J	The result is an estimated value.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso
State Certifications, Accreditations, and Licenses

Agency	Web Site	Number
Alaska DEH	http://dec.alaska.gov/eh/lab/cs/csapproval.htm	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2795
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L16-58-R4
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Hawaii DOH	http://health.hawaii.gov/	-
ISO 17025	http://www.pjlabs.com/	L16-57
Louisiana DEQ	http://www.deq.louisiana.gov/page/la-lab-accreditation	03016
Maine DHS	http://www.maine.gov/dhhs/	WA01276
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Nevada DEP	http://ndep.nv.gov/bsdw/labservice.htm	WA01276
New Jersey DEP	http://www.nj.gov/dep/enforcement/oqa.html	WA005
New York - DOH	https://www.wadsworth.org/regulatory/elap	12060
North Carolina DEQ	https://deq.nc.gov/about/divisions/water-resources/water-resources-data/water-sciences-home-page/laboratory-certification-branch/non-field-lab-certification	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA100010
South Carolina DHEC	http://www.scdhec.gov/environment/EnvironmentalLabCertification/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704427
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C544
Wyoming (EPA Region 8)	https://www.epa.gov/region8-waterops/epa-region-8-certified-drinking-water-	-
Kelso Laboratory Website	www.alsglobal.com	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.ALSGlobal.com or at the accreditation bodies web site.
Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/anlayte is offered by that state.

Case Narrative

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

1317 South 13th Ave, Kelso, WA 98626 | 1-360-577-7222 | www.alsglobal.com

Client: ALS Environmental - US
Project: HS20110527
Sample Matrix: Ground Water

Service Request: K2010530
Date Received: 11/13/2020

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples for the Tier level II requested by the client.

Sample Receipt:

Four ground water samples were received for analysis at ALS Environmental on 11/13/2020. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

General Chemistry:

No significant anomalies were noted with this analysis.

Approved by Kelley Lovejoy Date 11/25/2020

Chain of Custody

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

K2010530

10450 Stancliff Rd, Ste 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887
www.alsglobal.com

Subcontract Chain of Custody

SAMPLING STATE: **Dept of Defense** **COC ID:** **15143**

SUBCONTRACT TO:

ALS Environmental Kelso
1317 S. 13th Avenue
Kelso, WA 98626

Phone: +1 360 501 3312

CUSTOMER INFORMATION:

Company:	ALS Houston
Contact:	RJ Modashia
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Email:	RJ.Modashia@alsglobal.com
Alternate Contact:	
Email:	

INVOICE INFORMATION:

Company:	ALS Houston
Contact:	Accounts Payable
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Reference:	HS20110527
TSR:	Sonia West

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS20110527-11**	**35BWW26-201110**	**Groundwater**	**10 Nov 2020 07:20**
	TOC: Provide Level II & DOD Level IV/EQuIS APTIM EDD			25 Nov 2020
2.	**HS20110527-12**	**35BWW04-201110**	**Groundwater**	**10 Nov 2020 08:05**
	TOC: Provide Level II & DOD Level IV/EQuIS APTIM EDD			25 Nov 2020
3.	**HS20110527-13**	**35BWW14-201110**	**Groundwater**	**10 Nov 2020 09:00**
	TOC: Provide Level II & DOD Level IV/EQuIS APTIM EDD			25 Nov 2020
4.	**HS20110527-15**	**35BWW23-201110**	**Groundwater**	**10 Nov 2020 10:30**
	TOC: Provide Level II & DOD Level IV/EQuIS APTIM EDD			25 Nov 2020

Comments: Please analyze for the analysis listed above.
Send report to the emails shown above.

QC Level: DOD IV (DoD Data Package)

Relinquished By: _____ Date/Time: 11/12/2020 1800

Received By: Alexis Bon Date/Time: 11/13/20 1030

Cooler ID(s): _____ Temperature(s): _____

PM VL

Cooler Receipt and Preservation Form

Client ALS Houston Service Request K20 10530

Received: 11/13/20 Opened: 11/13/20 By: NP Unloaded: 11/13/20 By: NP

1. Samples were received via? *USPS* *Fed Ex* *UPS* *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) *Cooler* *Box* *Envelope* *Other* _____ *NA*
3. Were custody seals on coolers? NA (Y) N If yes, how many and where? 2 front
   If present, were custody seals intact? (Y) N If present, were they signed and dated? (Y) N
4. Was a Temperature Blank present in cooler? NA (Y) N If yes, notate the temperature in the appropriate column below:
   If no, take the temperature of a representative sample bottle contained within the cooler; notate in the column "Sample Temp":
5. Were samples received within the method specified temperature ranges? NA (Y) N
   If no, were they received on ice and same day as collected? If not, notate the cooler # below and notify the PM. (NA) Y N

If applicable, tissue samples were received: *Frozen* *Partially Thawed* *Thawed*

Temp Blank	Sample Temp	IR Gun	Cooler #/COC ID / NA	Out of temp Indicate with "X"	PM Notified If out of temp	Tracking Number NA	Filed
0.5	—	IR01	15143	—	—	1891 8882 7783	

6. Packing material: *Inserts* (Baggies) (Bubble Wrap) *Gel Packs* (Wet Ice) *Dry Ice* *Sleeves* _____
7. Were custody papers properly filled out (ink, signed, etc.)? NA (Y) N
8. Were samples received in good condition (unbroken) NA (Y) N
9. Were all sample labels complete (ie, analysis, preservation, etc.)? NA (Y) N
10. Did all sample labels and tags agree with custody papers? NA (Y) N
11. Were appropriate bottles/containers and volumes received for the tests indicated? NA (Y) N
12. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* NA (Y) N
13. Were VOA vials received without headspace? *Indicate in the table below.* (NA) Y N
14. Was C12/Res negative? (NA) Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count Bottle Type	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

Notes, Discrepancies, Resolutions: _____

General Chemistry

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	K2010530
Project:	HS20110527	**Date Collected:**	11/10/20
Sample Matrix:	Ground Water	**Date Received:**	11/13/20
Analysis Method:	SM 5310 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Carbon, Total Organic

Sample Name	Lab Code	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
35BWW26-201110	K2010530-001	**0.51**	0.50	0.20	0.07	1	11/19/20 17:48	
35BWW04-201110	K2010530-002	**0.76**	0.50	0.20	0.07	1	11/19/20 17:48	
35BWW14-201110	K2010530-003	**0.52**	0.50	0.20	0.07	1	11/19/20 17:48	
35BWW23-201110	K2010530-004	**1.13**	0.50	0.20	0.07	1	11/19/20 17:48	
Method Blank	K2010530-MB	ND U	0.50	0.20	0.07	1	11/19/20 17:48	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K2010530
Project:	HS20110527	**Date Analyzed:**	11/19/20
Sample Matrix:	Ground Water	**Date Extracted:**	NA

Lab Control Sample Summary
Carbon, Total Organic

Analysis Method:	SM 5310 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	704227

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K2010530-LCS	24.3	25.0	97	83-117

LABORATORY REPORT

November 24, 2020

RJ Modashia
ALS Laboratory Group
10450 Stancliff Road Suite 210
Houston, TX 77099-4338

RE: HS20110527

Dear RJ:

Enclosed are the results of the samples submitted to our laboratory on November 12, 2020. For your reference, these analyses have been assigned our service request number P2006450.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

ALS | Environmental

By Hayden Akers at 2:24 pm, Nov 24, 2020

Hayden Akers
Project Manager

Client: ALS Laboratory Group Service Request No: P2006450
Project: HS20110527

CASE NARRATIVE

The samples were received intact under chain of custody on November 12, 2020 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Carbon Dioxide Analysis

The samples were analyzed for carbon dioxide using a gas chromatograph equipped with a thermal conductivity detector (TCD). A known amount of liquid was displaced by injecting 8.0 milliliters of helium creating a headspace in the sample vial. Each sample vial was agitated using a sonic disrupter for fifteen minutes and then allowed to equilibrate for at least four hours. A volume of the headspace was withdrawn using a gas-tight syringe and analyzed using a manual injection technique. The amount of dissolved gases (carbon dioxide) in the original sample was calculated using Henry's Law. This method was performed with guidance from RSK 175 as described in laboratory SOP VOA-DISGAS. This analyte is included on the laboratory's NELAP and DoD-ELAP scope of accreditation.

The samples labeled P2006450-001 and P2006450-004 had a pH of 5. This may give a high bias for carbon dioxide.

Manual integrations were performed on the following sample(s) and analyte(s). Refer to the raw data for additional information.

Sample Identification(s)	Analyte(s)
P2006450-LCS	Carbon dioxide
P2006450-LCSD	Carbon dioxide
P2006450-003	Carbon dioxide

Methane, Ethene and Ethane Analysis

The samples were also analyzed for methane, ethene, and ethane using a gas chromatograph equipped with a flame ionization detector (FID). A known amount of liquid was displaced by injecting 8.0 milliliters of helium creating a headspace in the sample vial. Each sample vial was agitated using a sonic disrupter for fifteen minutes and then allowed to equilibrate for at least two hours. A volume of the headspace was withdrawn using a gas-tight syringe and analyzed using a manual injection technique. The amount of dissolved gases (methane, ethene and ethane) in the original sample was calculated using Henry's Law. This method was performed with guidance from RSK 175. This method is included on the laboratory's NELAP and DoD-ELAP scope of accreditation. Any analytes flagged with an X are not included on the laboratory's NELAP or DoD-ELAP accreditation.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

ALS Environmental – Simi Valley

CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

Agency	Web Site	Number
Alaska DEC	http://dec.alaska.gov/eh/lab.aspx	17-019
Arizona DHS	http://www.azdhs.gov/preparedness/state-laboratory/lab-licensure-certification/index.php#laboratory-licensure-home	AZ0694
Florida DOH (NELAP)	http://www.floridahealth.gov/licensing-and-regulation/environmental-laboratories/index.html	E871020
Louisiana DEQ (NELAP)	http://www.deq.louisiana.gov/page/la-lab-accreditation	05071
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/professionals/labCert.shtml	2018027
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	1776326
New Jersey DEP (NELAP)	http://www.nj.gov/dep/enforcement/oqa.html	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://www.oregon.gov/oha/ph/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	4068-007
Pennsylvania DEP	http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx	68-03307 (Registration)
PJLA (DoD ELAP)	http://www.pjlabs.com/search-accredited-labs	65818 (Testing)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/agency/qa/env_lab_accreditation.html	T104704413-19-10
Utah DOH (NELAP)	http://health.utah.gov/lab/lab_cert_env	CA016272019-10
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946

Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website.

Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.

ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: ALS Laboratory Group
Service Request: P2006450
Project ID: HS20110527

Date Received: 11/12/2020
Time Received: 09:30

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	RSK 175 - CO2	RSK 175 - Gases
35BWW26-201110	P2006450-001	Water	11/10/2020	07:20	X	X
35BWW04-201110	P2006450-002	Water	11/10/2020	08:05	X	X
35BWW14-201110	P2006450-003	Water	11/10/2020	09:00	X	X
35BWW23-201110	P2006450-004	Water	11/10/2020	10:30	X	X

RJ006450

10450 Stancliff Rd, Ste 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887
www.alsglobal.com

Subcontract Chain of Custody

SAMPLING STATE: **Dept of Defense** **COC ID:** **15144**

SUBCONTRACT TO:

ALS Environmental
2655 Park Center Drive, Suite A
Simi Valley, CA 93065 **Phone:** +1 805 526 7161

CUSTOMER INFORMATION:

Company:	ALS Houston
Contact:	RJ Modashia
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Email:	RJ.Modashia@alsglobal.com
Alternate Contact:	
Email:	

INVOICE INFORMATION:

Company:	ALS Houston
Contact:	Accounts Payable
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Reference:	HS20110527
TSR:	Sonia West

	LAB SAMPLE ID / ANALYSIS REQUESTED	CLIENT SAMPLE ID	MATRIX	COLLECT DATE / DUE DATE
1.	**HS20110527-11**	**35BWW26-201110**	**Groundwater**	**10 Nov 2020 07:20**
	MEE + CO2. Provide DOD LV II & IV pdf separate. EDD. EQuIS 5.0 - Longhorn		Equis	25 Nov 2020
2.	**HS20110527-12**	**35BWW04-201110**	**Groundwater**	**10 Nov 2020 08:05**
	MEE + CO2. Provide DOD LV II & IV pdf separate. EDD. EQuIS 5.0 - Longhorn		Equis	25 Nov 2020
3.	**HS20110527-13**	**35BWW14-201110**	**Groundwater**	**10 Nov 2020 09:00**
	MEE + CO2. Provide DOD LV II & IV pdf separate. EDD. EQuIS 5.0 - Longhorn		Equis	25 Nov 2020
4.	**HS20110527-15**	**35BWW23-201110**	**Groundwater**	**10 Nov 2020 10:30**
	MEE + CO2. Provide DOD LV II & IV pdf separate. EDD. EQuIS 5.0 - Longhorn		Equis	25 Nov 2020

Comments: Please analyze for the analysis listed above.
Send report to the emails shown above.
3 Vials neat & 3 Vials HCL

QC Level: DOD IV (DoD Data Package)

R1006450

Subcontract Chain of Custody

SAMPLING STATE: **Dept of Defense**

COC ID: **15144**

Relinquished By: _____ Date/Time: 11/11/2020 1800

Received By: _____ Date/Time: 11-12-20 0930 2° WET

Cooler ID(s): _____ Temperature(s): _____

ALS Environmental
Sample Acceptance Check Form

Client: ALS Laboratory Group Work order: P2006450

Project: HS20110527

Sample(s) received on: 11/12/2020 Date opened: 11/12/2020 by: ADAVID

Note: This form is used for all samples received by ALS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

		Yes	No	N/A
1	Were **sample containers** properly marked with client sample ID?	☒	☐	☐
2	Did **sample containers** arrive in good condition?	☒	☐	☐
3	Were **chain-of-custody** papers used and filled out?	☒	☐	☐
4	Did **sample container labels** and/or tags agree with custody papers?	☒	☐	☐
5	Was **sample volume** received adequate for analysis?	☒	☐	☐
6	Are samples within specified holding times?	☒	☐	☐
7	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☒	☐	☐
	Cooler Temperature: ° C Blank Temperature: 2° C	Wet Ice		
8	Were **custody seals** on outside of cooler/Box/Container?	☒	☐	☐
	Location of seal(s)? Cooler lid. Sealing Lid?	☒	☐	☐
	Were signature and date included?	☒	☐	☐
	Were seals intact?	☒	☐	☐
9	Do containers have appropriate **preservation**, according to method/SOP or Client specified information?	☒	☐	☐
	Is there a client indication that the submitted samples are **pH** preserved?	☒	☐	☐
	Were **VOA vials** checked for presence/absence of air bubbles?	☒	☐	☐
	Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?	☐	☒	☐
10	**Tubes:** Are the tubes capped and intact?	☐	☐	☒
11	**Badges:** Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P2006450-001.01	40mL VOA NP		5		A	wh 11/20/20
P2006450-001.02	40mL VOA NP				A	
P2006450-001.03	40mL VOA NP				A	
P2006450-001.04	40ml VOA HCL		1		A	wh 11/20/20
P2006450-001.05	40ml VOA HCL				A	
P2006450-001.06	40ml VOA HCL				A	
P2006450-002.01	40mL VOA NP		6		A	wh 11/20/20
P2006450-002.02	40mL VOA NP				A	
P2006450-002.03	40mL VOA NP				A	
P2006450-002.04	40ml VOA HCL		1		A	wh 11/20/20
P2006450-002.05	40ml VOA HCL				A	
P2006450-002.06	40ml VOA HCL				A	
P2006450-003.01	40mL VOA NP		6		A	wh 11/20/20
P2006450-003.02	40mL VOA NP				A	
P2006450-003.03	40mL VOA NP				A	

Explain any discrepancies: (include lab sample ID numbers):

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS Environmental
Sample Acceptance Check Form

Client: ALS Laboratory Group Work order: P2006450

Project: HS20110527

Sample(s) received on: 11/12/2020 Date opened: 11/12/2020 by: ADAVID

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P2006450-003.04	40ml VOA HCL		1		A	wh 11/20/20
P2006450-003.05	40ml VOA HCL				A	
P2006450-003.06	40ml VOA HCL				A	
P2006450-004.01	40mL VOA NP		5		A	wh 11/20/20
P2006450-004.02	40mL VOA NP				A	
P2006450-004.03	40mL VOA NP				A	
P2006450-004.04	40ml VOA HCL		1		A	wh 11/20/20
P2006450-004.05	40ml VOA HCL				A	
P2006450-004.06	40ml VOA HCL				A	

Explain any discrepancies: (include lab sample ID numbers):

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **35BWW26-201110**
Client Project ID: **HS20110527**

ALS Project ID: P2006450
ALS Sample ID: P2006450-001

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Wade Henton
Matrix: Water
Test Notes:

Date Collected: 11/10/20
Date Received: 11/12/20
Date Analyzed: 11/19/20
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	1.0	1.3	1.0	0.51	**U**
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **35BWW04-201110**
Client Project ID: **HS20110527**

ALS Project ID: P2006450
ALS Sample ID: P2006450-002

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Wade Henton
Matrix: Water
Test Notes:

Date Collected: 11/10/20
Date Received: 11/12/20
Date Analyzed: 11/19/20
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	1.0	1.3	1.0	0.51	**U**
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **35BWW14-201110**
Client Project ID: **HS20110527**

ALS Project ID: P2006450
ALS Sample ID: P2006450-003

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Wade Henton
Matrix: Water
Test Notes:

Date Collected: 11/10/20
Date Received: 11/12/20
Date Analyzed: 11/19/20
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	1.0	1.3	1.0	0.51	**U**
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **35BWW23-201110**
Client Project ID: **HS20110527**

ALS Project ID: P2006450
ALS Sample ID: P2006450-004

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Wade Henton
Matrix: Water
Test Notes:

Date Collected: 11/10/20
Date Received: 11/12/20
Date Analyzed: 11/19/20
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	1.0	1.3	1.0	0.51	**U**
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **Method Control Sample**
Client Project ID: **HS20110527**

ALS Project ID: P2006450
ALS Sample ID: P201119-MB

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Wade Henton
Matrix: Water
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 11/19/20
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	1.0	1.3	1.0	0.51	**U**
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

The Method Control Sample is laboratory water carried through the entire analytical process.
U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **ALS Laboratory Group**
Client Sample ID: **Duplicate Lab Control Sample**
Client Project ID: **HS20110527**

ALS Project ID: P2006450
ALS Sample ID: P201119-LCS
P201119-DLCS

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Wade Henton
Matrix: Water
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 11/19/20
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Spike Amount LCS / DLCS µg/L	Result$_1$ LCS µg/L	Result$_1$ DLCS µg/L	% Recovery LCS	% Recovery DLCS	DOD Acceptance Limits	RPD	RPD Limit	Data Qualifier
74-82-8	Methane	2.52	2.35	2.55	**93**	**101**	73-125	8	26	
74-85-1	Ethene	4.40	4.94	4.96	**112**	**113**	72-133	0.9	11	
74-84-0	Ethane	4.72	4.83	4.80	**102**	**102**	74-131	0	10	

$_1$ = The concentration shown includes a subtraction of the Method Control Sample value, even if the result is less than the MRL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Project ID: **HS20110527** ALS Project ID: P2006450

Carbon Dioxide

Test Code: RSK 175
Instrument ID: HP5890A/GC10/TCD
Analyst: Wade Henton
Matrix: Liquid
Test Notes:

Date(s) Collected: 11/10/20
Date Received: 11/12/20
Date Analyzed: 11/20/20

Client Sample ID	ALS Sample ID	Injection Volume ml(s)	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
35BWW26-201110	P2006450-001	0.10	**330,000**	1,000	860	370	
35BWW04-201110	P2006450-002	0.10	**94,000**	1,000	860	370	
35BWW14-201110	P2006450-003	0.10	**42,000**	1,000	860	370	
35BWW23-201110	P2006450-004	0.050	**630,000**	2,000	1,700	740	
Method Control Sample	P201120-MB	0.10	860	1,000	860	370	**U**

The Method Control Sample is laboratory water carried through the entire analytical process.
U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **ALS Laboratory Group**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P2006450
Client Project ID: **HS20110527** ALS Sample ID: P201120-DLCS

Test Code: RSK 175 Date Collected: NA
Instrument ID: HP5890A/GC10/TCD Date Received: NA
Analyst: Wade Henton Date Analyzed: 11/20/20
Matrix: Liquid Volume(s) Analyzed: NA ml(s)
Test Notes:

CAS #	Compound	Spike Amount LCS / DLCS ug/L	Result$_1$ LCS ug/L	Result$_1$ DLCS ug/L	% Recovery LCS	% Recovery DLCS	DOD Acceptance Limits	RPD	RPD Limit	Data Qualifier
124-38-9	Carbon Dioxide	22,900	18,700	19,200	**82**	**84**	80-122	2	12	

$_1$ = The concentration shown includes a subtraction of the Method Control Sample value, even if the result is less than the MRL.

10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887

December 01, 2020

Susan Huang
Aptim Environmental & Infrastucture, Inc.
2500 City West Blvd., Suite 1700
Houston, TX 77042

Work Order: **HS20110674**

Laboratory Results for: **Longhorn Army Ammunition Plant 37**

Dear Susan Huang,

ALS Environmental received 8 sample(s) on Nov 12, 2020 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Generated By: JUMOKE.LAWAL
RJ Modashia
Project Manager

ALS Houston, US Date: 01-Dec-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
Work Order: HS20110674

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS20110674-01	35BWW08-201111	Groundwater		11-Nov-2020 07:10	12-Nov-2020 10:15	☐
HS20110674-02	35BWW08-201111-FD	Groundwater		11-Nov-2020 07:10	12-Nov-2020 10:15	☐
HS20110674-03	35BWW12-201111	Groundwater		11-Nov-2020 08:05	12-Nov-2020 10:15	☐
HS20110674-04	35BWW07-201111	Groundwater		11-Nov-2020 09:05	12-Nov-2020 10:15	☐
HS20110674-05	35BWW13-201111	Groundwater		11-Nov-2020 09:45	12-Nov-2020 10:15	☐
HS20110674-06	35BWW16-201111	Groundwater		11-Nov-2020 10:30	12-Nov-2020 10:15	☐
HS20110674-07	35BWW17-201111	Groundwater		11-Nov-2020 11:10	12-Nov-2020 10:15	☐
HS20110674-08	Trip Blank-201111	Groundwater		11-Nov-2020 00:00	12-Nov-2020 10:15	☐

ALS Houston, US Date: 01-Dec-20

Client: Aptim Environmental & Infrastucture, Inc. **CASE NARRATIVE**
Project: Longhorn Army Ammunition Plant 37
Work Order: HS20110674

Work Order Comments

- The analysis for Methane, Methene, Ethane and CO2 by RSK175 was subcontracted to ALS Simi Valley, CA. Final report attached.
- The analysis for TOC was subcontracted to ALS Kelso, WA. Final report attached.

GCMS Volatiles by Method SW8260

Batch ID: R373373

Sample ID: CCV

- Naphthalene exceeded % D limits for CCV. Samples are ND for this compound.

Sample ID: VLCSW-201124

- 1,2,3-Trichlorobenzene, 1,2-Dibromo-3-chloropropane, Naphthalene exceeded QC limits for LCS. Samples are ND for these compounds.

Sample ID: 35BWW12-201111 (HS20110674-03MS)D

- The recovery of the the Matrix Spike Duplicate (MSD) was outside of the established control limit. 1,2,3-Trichlorobenzene, Naphthalene

WetChemistry by Method SW9056

Batch ID: R372810

Sample ID: 35BWW08-201111 (HS20110674-01)

- Sample was analyzed outside of the holding time at the request of the client. Results should be considered estimated.

Sample ID: 35BWW08-201111-FD (HS20110674-02)

- Sample was analyzed outside of the holding time at the request of the client. Results should be considered estimated.

Sample ID: 35BWW12-201111 (HS20110674-03)

- Sample was analyzed outside of the holding time at the request of the client. Results should be considered estimated.

ALS Houston, US Date: 01-Dec-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
Sample ID: 35BWW08-201111
Collection Date: 11-Nov-2020 07:10

ANALYTICAL REPORT
WorkOrder:HS20110674
Lab ID:HS20110674-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 17:27
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 17:27
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	UG/L	1	24-Nov-2020 17:27
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	UG/L	1	24-Nov-2020 17:27
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 17:27
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 17:27
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 17:27
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 17:27
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	24-Nov-2020 17:27
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	24-Nov-2020 17:27
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	24-Nov-2020 17:27
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 17:27
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 17:27
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 17:27
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	24-Nov-2020 17:27
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 17:27
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	24-Nov-2020 17:27
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 17:27
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	24-Nov-2020 17:27
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 17:27
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	24-Nov-2020 17:27
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 17:27
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2020 17:27
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 17:27
2-Hexanone	2.0	U	1.0	2.0	2.0	UG/L	1	24-Nov-2020 17:27
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	UG/L	1	24-Nov-2020 17:27
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 17:27
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	UG/L	1	24-Nov-2020 17:27
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2020 17:27
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 17:27
Bromobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	24-Nov-2020 17:27
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 17:27
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 17:27
Bromoform	1.0	U	0.40	1.0	1.0	UG/L	1	24-Nov-2020 17:27
Bromomethane	1.0	U	0.40	1.0	1.0	UG/L	1	24-Nov-2020 17:27
Carbon disulfide	2.0	U	0.60	2.0	2.0	UG/L	1	24-Nov-2020 17:27
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	UG/L	1	24-Nov-2020 17:27
Chlorobenzene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 17:27
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 17:27

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 01-Dec-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
Sample ID: 35BWW08-201111
Collection Date: 11-Nov-2020 07:10

ANALYTICAL REPORT
WorkOrder:HS20110674
Lab ID:HS20110674-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 17:27
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 17:27
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 17:27
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	24-Nov-2020 17:27
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 17:27
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 17:27
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 17:27
Ethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 17:27
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	24-Nov-2020 17:27
Isopropylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 17:27
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2020 17:27
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2020 17:27
n-Butylbenzene	1.0	U	0.40	1.0	1.0	UG/L	1	24-Nov-2020 17:27
n-Propylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 17:27
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 17:27
o-Xylene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 17:27
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 17:27
Styrene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 17:27
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 17:27
Tetrachloroethene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 17:27
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 17:27
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 17:27
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 17:27
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 17:27
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 17:27
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 17:27
Surr: 1,2-Dichloroethane-d4	*86.8*			**0**	*81-118*	*%REC*	*1*	*24-Nov-2020 17:27*
Surr: 4-Bromofluorobenzene	*93.0*			**0**	*85-114*	*%REC*	*1*	*24-Nov-2020 17:27*
Surr: Dibromofluoromethane	*89.0*			**0**	*80-119*	*%REC*	*1*	*24-Nov-2020 17:27*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*1*	*24-Nov-2020 17:27*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: YP
Chloride	**4.56**		**0.200**	**0.500**	**0.500**	**mg/L**	1	13-Nov-2020 12:59
Nitrogen, Nitrate (As N)	**0.215**	H	**0.0300**	**0.100**	**0.100**	**mg/L**	1	13-Nov-2020 12:59
Sulfate	**24.7**		**0.200**	**0.500**	**0.500**	**mg/L**	1	13-Nov-2020 12:59
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUBCA
Subcontract Analysis	See Attached		0	0		NA	1	29-Nov-2020 11:41
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	01-Dec-2020 09:19

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 01-Dec-20

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: Longhorn Army Ammunition Plant 37 WorkOrder:HS20110674
Sample ID: 35BWW08-201111-FD Lab ID:HS20110674-02
Collection Date: 11-Nov-2020 07:10 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 17:48
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 17:48
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	UG/L	1	24-Nov-2020 17:48
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	UG/L	1	24-Nov-2020 17:48
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 17:48
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 17:48
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 17:48
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 17:48
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	24-Nov-2020 17:48
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	24-Nov-2020 17:48
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	24-Nov-2020 17:48
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 17:48
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 17:48
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 17:48
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	24-Nov-2020 17:48
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 17:48
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	24-Nov-2020 17:48
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 17:48
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	24-Nov-2020 17:48
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 17:48
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	24-Nov-2020 17:48
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 17:48
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2020 17:48
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 17:48
2-Hexanone	2.0	U	1.0	2.0	2.0	UG/L	1	24-Nov-2020 17:48
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	UG/L	1	24-Nov-2020 17:48
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 17:48
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	UG/L	1	24-Nov-2020 17:48
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2020 17:48
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 17:48
Bromobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	24-Nov-2020 17:48
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 17:48
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 17:48
Bromoform	1.0	U	0.40	1.0	1.0	UG/L	1	24-Nov-2020 17:48
Bromomethane	1.0	U	0.40	1.0	1.0	UG/L	1	24-Nov-2020 17:48
Carbon disulfide	2.0	U	0.60	2.0	2.0	UG/L	1	24-Nov-2020 17:48
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	UG/L	1	24-Nov-2020 17:48
Chlorobenzene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 17:48
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 17:48

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 01-Dec-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
Sample ID: 35BWW08-201111-FD
Collection Date: 11-Nov-2020 07:10

ANALYTICAL REPORT
WorkOrder:HS20110674
Lab ID:HS20110674-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 17:48
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 17:48
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 17:48
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	24-Nov-2020 17:48
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 17:48
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 17:48
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 17:48
Ethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 17:48
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	24-Nov-2020 17:48
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 17:48
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2020 17:48
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2020 17:48
n-Butylbenzene	1.0	U	0.40	1.0	1.0	UG/L	1	24-Nov-2020 17:48
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 17:48
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 17:48
o-Xylene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 17:48
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 17:48
Styrene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 17:48
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 17:48
Tetrachloroethene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 17:48
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 17:48
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 17:48
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 17:48
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 17:48
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 17:48
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 17:48
Surr: 1,2-Dichloroethane-d4	*90.7*			**0**	*81-118*	*%REC*	*1*	*24-Nov-2020 17:48*
Surr: 4-Bromofluorobenzene	*89.9*			**0**	*85-114*	*%REC*	*1*	*24-Nov-2020 17:48*
Surr: Dibromofluoromethane	*92.6*			**0**	*80-119*	*%REC*	*1*	*24-Nov-2020 17:48*
Surr: Toluene-d8	*103*			**0**	*89-112*	*%REC*	*1*	*24-Nov-2020 17:48*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: YP
Chloride	**4.72**		**0.200**	**0.500**	**0.500**	**mg/L**	1	13-Nov-2020 13:17
Nitrogen, Nitrate (As N)	**0.226**	H	**0.0300**	**0.100**	**0.100**	**mg/L**	1	13-Nov-2020 13:17
Sulfate	**24.9**		**0.200**	**0.500**	**0.500**	**mg/L**	1	13-Nov-2020 13:17
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUBCA
Subcontract Analysis	See Attached		0	0		NA	1	29-Nov-2020 11:41
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	01-Dec-2020 09:19

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 01-Dec-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
Sample ID: 35BWW12-201111
Collection Date: 11-Nov-2020 08:05

ANALYTICAL REPORT
WorkOrder:HS20110674
Lab ID:HS20110674-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 13:35
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 13:35
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	UG/L	1	24-Nov-2020 13:35
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	UG/L	1	24-Nov-2020 13:35
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 13:35
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 13:35
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 13:35
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 13:35
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	24-Nov-2020 13:35
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	24-Nov-2020 13:35
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	24-Nov-2020 13:35
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 13:35
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 13:35
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 13:35
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	24-Nov-2020 13:35
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 13:35
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	24-Nov-2020 13:35
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 13:35
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	24-Nov-2020 13:35
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 13:35
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	24-Nov-2020 13:35
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 13:35
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2020 13:35
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 13:35
2-Hexanone	2.0	U	1.0	2.0	2.0	UG/L	1	24-Nov-2020 13:35
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	UG/L	1	24-Nov-2020 13:35
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 13:35
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	UG/L	1	24-Nov-2020 13:35
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2020 13:35
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 13:35
Bromobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	24-Nov-2020 13:35
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 13:35
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 13:35
Bromoform	1.0	U	0.40	1.0	1.0	UG/L	1	24-Nov-2020 13:35
Bromomethane	1.0	U	0.40	1.0	1.0	UG/L	1	24-Nov-2020 13:35
Carbon disulfide	2.0	U	0.60	2.0	2.0	UG/L	1	24-Nov-2020 13:35
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	UG/L	1	24-Nov-2020 13:35
Chlorobenzene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 13:35
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 13:35

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 01-Dec-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
Sample ID: 35BWW12-201111
Collection Date: 11-Nov-2020 08:05

ANALYTICAL REPORT
WorkOrder:HS20110674
Lab ID:HS20110674-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 13:35
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 13:35
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 13:35
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	24-Nov-2020 13:35
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 13:35
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 13:35
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 13:35
Ethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 13:35
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	24-Nov-2020 13:35
Isopropylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 13:35
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2020 13:35
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2020 13:35
n-Butylbenzene	1.0	U	0.40	1.0	1.0	UG/L	1	24-Nov-2020 13:35
n-Propylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 13:35
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 13:35
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 13:35
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 13:35
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 13:35
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 13:35
Tetrachloroethene	**3.1**		**0.30**	**0.50**	**1.0**	**UG/L**	1	24-Nov-2020 13:35
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 13:35
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 13:35
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 13:35
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 13:35
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 13:35
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 13:35
Surr: 1,2-Dichloroethane-d4	*83.6*			**0**	*81-118*	*%REC*	*1*	*24-Nov-2020 13:35*
Surr: 4-Bromofluorobenzene	*90.0*			**0**	*85-114*	*%REC*	*1*	*24-Nov-2020 13:35*
Surr: Dibromofluoromethane	*87.5*			**0**	*80-119*	*%REC*	*1*	*24-Nov-2020 13:35*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*1*	*24-Nov-2020 13:35*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: YP
Chloride	**6.25**		**0.200**	**0.500**	**0.500**	**mg/L**	1	13-Nov-2020 13:35
Nitrogen, Nitrate (As N)	**0.0318**	JH	**0.0300**	**0.100**	**0.100**	**mg/L**	1	13-Nov-2020 13:35
Sulfate	**35.9**		**0.200**	**0.500**	**0.500**	**mg/L**	1	13-Nov-2020 13:35
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUBCA
Subcontract Analysis	See Attached		0	0		NA	1	29-Nov-2020 11:41
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	01-Dec-2020 09:19

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 01-Dec-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
Sample ID: 35BWW07-201111
Collection Date: 11-Nov-2020 09:05

ANALYTICAL REPORT
WorkOrder:HS20110674
Lab ID:HS20110674-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 18:09
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 18:09
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	UG/L	1	24-Nov-2020 18:09
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	UG/L	1	24-Nov-2020 18:09
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 18:09
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 18:09
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 18:09
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 18:09
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	24-Nov-2020 18:09
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	24-Nov-2020 18:09
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	24-Nov-2020 18:09
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 18:09
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 18:09
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 18:09
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	24-Nov-2020 18:09
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 18:09
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	24-Nov-2020 18:09
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 18:09
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	24-Nov-2020 18:09
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 18:09
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	24-Nov-2020 18:09
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 18:09
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2020 18:09
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 18:09
2-Hexanone	2.0	U	1.0	2.0	2.0	UG/L	1	24-Nov-2020 18:09
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	UG/L	1	24-Nov-2020 18:09
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 18:09
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	UG/L	1	24-Nov-2020 18:09
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2020 18:09
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 18:09
Bromobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	24-Nov-2020 18:09
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 18:09
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 18:09
Bromoform	1.0	U	0.40	1.0	1.0	UG/L	1	24-Nov-2020 18:09
Bromomethane	1.0	U	0.40	1.0	1.0	UG/L	1	24-Nov-2020 18:09
Carbon disulfide	2.0	U	0.60	2.0	2.0	UG/L	1	24-Nov-2020 18:09
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	UG/L	1	24-Nov-2020 18:09
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 18:09
Chloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 18:09

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 01-Dec-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
Sample ID: 35BWW07-201111
Collection Date: 11-Nov-2020 09:05

ANALYTICAL REPORT
WorkOrder:HS20110674
Lab ID:HS20110674-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 18:09
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 18:09
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 18:09
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	24-Nov-2020 18:09
Dibromochloromethane	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 18:09
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 18:09
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 18:09
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 18:09
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	24-Nov-2020 18:09
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 18:09
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2020 18:09
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2020 18:09
n-Butylbenzene	1.0	U	0.40	1.0	1.0	UG/L	1	24-Nov-2020 18:09
n-Propylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 18:09
Naphthalene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 18:09
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 18:09
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 18:09
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 18:09
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 18:09
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 18:09
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 18:09
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 18:09
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 18:09
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 18:09
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 18:09
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 18:09
Surr: 1,2-Dichloroethane-d4	*88.4*			**0**	*81-118*	*%REC*	*1*	*24-Nov-2020 18:09*
Surr: 4-Bromofluorobenzene	*86.6*			**0**	*85-114*	*%REC*	*1*	*24-Nov-2020 18:09*
Surr: Dibromofluoromethane	*89.1*			**0**	*80-119*	*%REC*	*1*	*24-Nov-2020 18:09*
Surr: Toluene-d8	*103*			**0**	*89-112*	*%REC*	*1*	*24-Nov-2020 18:09*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 01-Dec-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
Sample ID: 35BWW13-201111
Collection Date: 11-Nov-2020 09:45

ANALYTICAL REPORT
WorkOrder:HS20110674
Lab ID:HS20110674-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 18:30
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 18:30
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	UG/L	1	24-Nov-2020 18:30
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	UG/L	1	24-Nov-2020 18:30
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 18:30
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 18:30
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 18:30
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 18:30
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	24-Nov-2020 18:30
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	24-Nov-2020 18:30
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	24-Nov-2020 18:30
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 18:30
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 18:30
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 18:30
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	24-Nov-2020 18:30
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 18:30
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	24-Nov-2020 18:30
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 18:30
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	24-Nov-2020 18:30
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 18:30
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	24-Nov-2020 18:30
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 18:30
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2020 18:30
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 18:30
2-Hexanone	2.0	U	1.0	2.0	2.0	UG/L	1	24-Nov-2020 18:30
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	UG/L	1	24-Nov-2020 18:30
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 18:30
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	UG/L	1	24-Nov-2020 18:30
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2020 18:30
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 18:30
Bromobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	24-Nov-2020 18:30
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 18:30
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 18:30
Bromoform	1.0	U	0.40	1.0	1.0	UG/L	1	24-Nov-2020 18:30
Bromomethane	1.0	U	0.40	1.0	1.0	UG/L	1	24-Nov-2020 18:30
Carbon disulfide	2.0	U	0.60	2.0	2.0	UG/L	1	24-Nov-2020 18:30
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	UG/L	1	24-Nov-2020 18:30
Chlorobenzene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 18:30
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 18:30

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 01-Dec-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
Sample ID: 35BWW13-201111
Collection Date: 11-Nov-2020 09:45

ANALYTICAL REPORT
WorkOrder:HS20110674
Lab ID:HS20110674-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 18:30
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 18:30
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 18:30
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	24-Nov-2020 18:30
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 18:30
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 18:30
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 18:30
Ethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 18:30
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	24-Nov-2020 18:30
Isopropylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 18:30
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2020 18:30
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2020 18:30
n-Butylbenzene	1.0	U	0.40	1.0	1.0	UG/L	1	24-Nov-2020 18:30
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 18:30
Naphthalene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 18:30
o-Xylene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 18:30
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 18:30
Styrene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 18:30
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 18:30
Tetrachloroethene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 18:30
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 18:30
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 18:30
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 18:30
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 18:30
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 18:30
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 18:30
Surr: 1,2-Dichloroethane-d4	*87.7*			**0**	*81-118*	*%REC*	*1*	*24-Nov-2020 18:30*
Surr: 4-Bromofluorobenzene	*88.6*			**0**	*85-114*	*%REC*	*1*	*24-Nov-2020 18:30*
Surr: Dibromofluoromethane	*89.7*			**0**	*80-119*	*%REC*	*1*	*24-Nov-2020 18:30*
Surr: Toluene-d8	*105*			**0**	*89-112*	*%REC*	*1*	*24-Nov-2020 18:30*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 01-Dec-20

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: Longhorn Army Ammunition Plant 37 WorkOrder:HS20110674
Sample ID: 35BWW16-201111 Lab ID:HS20110674-06
Collection Date: 11-Nov-2020 10:30 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 18:51
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 18:51
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	UG/L	1	24-Nov-2020 18:51
1,1,2-Trichlor-1,2,2-trifluoroethane	**3.7**		**0.50**	**1.0**	**1.0**	**UG/L**	1	24-Nov-2020 18:51
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 18:51
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 18:51
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 18:51
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 18:51
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	24-Nov-2020 18:51
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	24-Nov-2020 18:51
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	24-Nov-2020 18:51
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 18:51
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 18:51
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 18:51
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	24-Nov-2020 18:51
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 18:51
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	24-Nov-2020 18:51
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 18:51
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	24-Nov-2020 18:51
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 18:51
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	24-Nov-2020 18:51
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 18:51
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2020 18:51
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 18:51
2-Hexanone	2.0	U	1.0	2.0	2.0	UG/L	1	24-Nov-2020 18:51
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	UG/L	1	24-Nov-2020 18:51
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 18:51
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	UG/L	1	24-Nov-2020 18:51
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2020 18:51
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 18:51
Bromobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	24-Nov-2020 18:51
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 18:51
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 18:51
Bromoform	1.0	U	0.40	1.0	1.0	UG/L	1	24-Nov-2020 18:51
Bromomethane	1.0	U	0.40	1.0	1.0	UG/L	1	24-Nov-2020 18:51
Carbon disulfide	2.0	U	0.60	2.0	2.0	UG/L	1	24-Nov-2020 18:51
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	UG/L	1	24-Nov-2020 18:51
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 18:51

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 01-Dec-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
Sample ID: 35BWW16-201111
Collection Date: 11-Nov-2020 10:30

ANALYTICAL REPORT
WorkOrder:HS20110674
Lab ID:HS20110674-06
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 18:51
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 18:51
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 18:51
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 18:51
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	24-Nov-2020 18:51
Dibromochloromethane	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 18:51
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 18:51
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 18:51
Ethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 18:51
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	24-Nov-2020 18:51
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 18:51
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2020 18:51
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2020 18:51
n-Butylbenzene	1.0	U	0.40	1.0	1.0	UG/L	1	24-Nov-2020 18:51
n-Propylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 18:51
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 18:51
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 18:51
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 18:51
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 18:51
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 18:51
Tetrachloroethene	**4.4**		**0.30**	**0.50**	**1.0**	**UG/L**	1	24-Nov-2020 18:51
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 18:51
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 18:51
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 18:51
Trichloroethene	**1.8**		**0.20**	**0.50**	**1.0**	**UG/L**	1	24-Nov-2020 18:51
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 18:51
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 18:51
Surr: 1,2-Dichloroethane-d4	*85.8*			**0**	*81-118*	*%REC*	*1*	*24-Nov-2020 18:51*
Surr: 4-Bromofluorobenzene	*93.2*			**0**	*85-114*	*%REC*	*1*	*24-Nov-2020 18:51*
Surr: Dibromofluoromethane	*91.8*			**0**	*80-119*	*%REC*	*1*	*24-Nov-2020 18:51*
Surr: Toluene-d8	*105*			**0**	*89-112*	*%REC*	*1*	*24-Nov-2020 18:51*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 01-Dec-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
Sample ID: 35BWW17-201111
Collection Date: 11-Nov-2020 11:10

ANALYTICAL REPORT
WorkOrder:HS20110674
Lab ID:HS20110674-07
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 19:12
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 19:12
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	UG/L	1	24-Nov-2020 19:12
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	UG/L	1	24-Nov-2020 19:12
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 19:12
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 19:12
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 19:12
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 19:12
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	24-Nov-2020 19:12
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	24-Nov-2020 19:12
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	24-Nov-2020 19:12
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 19:12
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 19:12
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 19:12
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	24-Nov-2020 19:12
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 19:12
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	24-Nov-2020 19:12
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 19:12
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	24-Nov-2020 19:12
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 19:12
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	24-Nov-2020 19:12
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 19:12
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2020 19:12
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 19:12
2-Hexanone	2.0	U	1.0	2.0	2.0	UG/L	1	24-Nov-2020 19:12
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	UG/L	1	24-Nov-2020 19:12
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 19:12
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	UG/L	1	24-Nov-2020 19:12
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2020 19:12
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 19:12
Bromobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	24-Nov-2020 19:12
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 19:12
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 19:12
Bromoform	1.0	U	0.40	1.0	1.0	UG/L	1	24-Nov-2020 19:12
Bromomethane	1.0	U	0.40	1.0	1.0	UG/L	1	24-Nov-2020 19:12
Carbon disulfide	2.0	U	0.60	2.0	2.0	UG/L	1	24-Nov-2020 19:12
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	UG/L	1	24-Nov-2020 19:12
Chlorobenzene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 19:12
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 19:12

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 01-Dec-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
Sample ID: 35BWW17-201111
Collection Date: 11-Nov-2020 11:10

ANALYTICAL REPORT
WorkOrder:HS20110674
Lab ID:HS20110674-07
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 19:12
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 19:12
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 19:12
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	24-Nov-2020 19:12
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 19:12
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 19:12
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 19:12
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 19:12
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	24-Nov-2020 19:12
Isopropylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 19:12
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2020 19:12
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2020 19:12
n-Butylbenzene	1.0	U	0.40	1.0	1.0	UG/L	1	24-Nov-2020 19:12
n-Propylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 19:12
Naphthalene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 19:12
o-Xylene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 19:12
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 19:12
Styrene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 19:12
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 19:12
Tetrachloroethene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 19:12
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 19:12
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 19:12
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 19:12
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 19:12
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 19:12
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 19:12
Surr: 1,2-Dichloroethane-d4	*87.2*			**0**	*81-118*	*%REC*	*1*	*24-Nov-2020 19:12*
Surr: 4-Bromofluorobenzene	*87.0*			**0**	*85-114*	*%REC*	*1*	*24-Nov-2020 19:12*
Surr: Dibromofluoromethane	*86.5*			**0**	*80-119*	*%REC*	*1*	*24-Nov-2020 19:12*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*1*	*24-Nov-2020 19:12*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 01-Dec-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
Sample ID: Trip Blank-201111
Collection Date: 11-Nov-2020 00:00

ANALYTICAL REPORT
WorkOrder:HS20110674
Lab ID:HS20110674-08
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 17:06
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 17:06
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	UG/L	1	24-Nov-2020 17:06
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	UG/L	1	24-Nov-2020 17:06
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 17:06
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 17:06
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 17:06
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 17:06
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	24-Nov-2020 17:06
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	24-Nov-2020 17:06
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	24-Nov-2020 17:06
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 17:06
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 17:06
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 17:06
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	24-Nov-2020 17:06
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 17:06
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	24-Nov-2020 17:06
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 17:06
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	24-Nov-2020 17:06
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 17:06
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	24-Nov-2020 17:06
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 17:06
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2020 17:06
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 17:06
2-Hexanone	2.0	U	1.0	2.0	2.0	UG/L	1	24-Nov-2020 17:06
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	UG/L	1	24-Nov-2020 17:06
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 17:06
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	UG/L	1	24-Nov-2020 17:06
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2020 17:06
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 17:06
Bromobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	24-Nov-2020 17:06
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 17:06
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 17:06
Bromoform	1.0	U	0.40	1.0	1.0	UG/L	1	24-Nov-2020 17:06
Bromomethane	1.0	U	0.40	1.0	1.0	UG/L	1	24-Nov-2020 17:06
Carbon disulfide	2.0	U	0.60	2.0	2.0	UG/L	1	24-Nov-2020 17:06
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	UG/L	1	24-Nov-2020 17:06
Chlorobenzene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 17:06
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 17:06

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 01-Dec-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
Sample ID: Trip Blank-201111
Collection Date: 11-Nov-2020 00:00

ANALYTICAL REPORT
WorkOrder:HS20110674
Lab ID:HS20110674-08
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 17:06
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 17:06
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 17:06
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	24-Nov-2020 17:06
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 17:06
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 17:06
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 17:06
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 17:06
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	24-Nov-2020 17:06
Isopropylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 17:06
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	24-Nov-2020 17:06
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	24-Nov-2020 17:06
n-Butylbenzene	1.0	U	0.40	1.0	1.0	UG/L	1	24-Nov-2020 17:06
n-Propylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Nov-2020 17:06
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 17:06
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 17:06
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 17:06
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 17:06
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 17:06
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 17:06
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 17:06
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 17:06
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 17:06
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 17:06
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	24-Nov-2020 17:06
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	24-Nov-2020 17:06
Surr: 1,2-Dichloroethane-d4	*86.5*			**0**	*81-118*	*%REC*	*1*	*24-Nov-2020 17:06*
Surr: 4-Bromofluorobenzene	*89.5*			**0**	*85-114*	*%REC*	*1*	*24-Nov-2020 17:06*
Surr: Dibromofluoromethane	*90.1*			**0**	*80-119*	*%REC*	*1*	*24-Nov-2020 17:06*
Surr: Toluene-d8	*103*			**0**	*89-112*	*%REC*	*1*	*24-Nov-2020 17:06*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 01-Dec-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
WorkOrder: HS20110674

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R372810 (0)	**Test Name :** ANIONS BY SW9056A				**Matrix:** Groundwater	
HS20110674-01	35BWW08-201111	11 Nov 2020 07:10			13 Nov 2020 12:59	1
HS20110674-02	35BWW08-201111-FD	11 Nov 2020 07:10			13 Nov 2020 13:17	1
HS20110674-03	35BWW12-201111	11 Nov 2020 08:05			13 Nov 2020 13:35	1
Batch ID: R373373 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Groundwater	
HS20110674-01	35BWW08-201111	11 Nov 2020 07:10			24 Nov 2020 17:27	1
HS20110674-02	35BWW08-201111-FD	11 Nov 2020 07:10			24 Nov 2020 17:48	1
HS20110674-03	35BWW12-201111	11 Nov 2020 08:05			24 Nov 2020 13:35	1
HS20110674-04	35BWW07-201111	11 Nov 2020 09:05			24 Nov 2020 18:09	1
HS20110674-05	35BWW13-201111	11 Nov 2020 09:45			24 Nov 2020 18:30	1
HS20110674-06	35BWW16-201111	11 Nov 2020 10:30			24 Nov 2020 18:51	1
HS20110674-07	35BWW17-201111	11 Nov 2020 11:10			24 Nov 2020 19:12	1
HS20110674-08	Trip Blank-201111	11 Nov 2020 00:00			24 Nov 2020 17:06	1
Batch ID: R373534 (0)	**Test Name :** SUBCONTRACT ANALYSIS - RSK				**Matrix:** Groundwater	
HS20110674-01	35BWW08-201111	11 Nov 2020 07:10			29 Nov 2020 11:41	1
HS20110674-02	35BWW08-201111-FD	11 Nov 2020 07:10			29 Nov 2020 11:41	1
HS20110674-03	35BWW12-201111	11 Nov 2020 08:05			29 Nov 2020 11:41	1
Batch ID: R373645 (0)	**Test Name :** SUBCONTRACT ANALYSIS - TOC ANALYSIS				**Matrix:** Groundwater	
HS20110674-01	35BWW08-201111	11 Nov 2020 07:10			01 Dec 2020 09:19	1
HS20110674-02	35BWW08-201111-FD	11 Nov 2020 07:10			01 Dec 2020 09:19	1
HS20110674-03	35BWW12-201111	11 Nov 2020 08:05			01 Dec 2020 09:19	1

ALS Houston, US Date: 01-Dec-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
WorkOrder: HS20110674

QC BATCH REPORT

Batch ID: R373373 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-201124** Units: **UG/L** Analysis Date: **24-Nov-2020 12:53**
Client ID: Run ID: **VOA6_373373** SeqNo: **5850864** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	0.50	1.0								U
1,1,1-Trichloroethane	0.50	1.0								U
1,1,2,2-Tetrachloroethane	1.0	1.0								U
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	1.0								U
1,1,2-Trichloroethane	1.0	1.0								U
1,1-Dichloroethane	0.50	1.0								U
1,1-Dichloroethene	0.50	1.0								U
1,1-Dichloropropene	0.50	1.0								U
1,2,3-Trichlorobenzene	1.0	1.0								U
1,2,3-Trichloropropane	1.0	1.0								U
1,2,4-Trichlorobenzene	1.0	1.0								U
1,2,4-Trimethylbenzene	1.0	1.0								U
1,2-Dibromo-3-chloropropane	0.50	1.0								U
1,2-Dibromoethane	0.50	1.0								U
1,2-Dichlorobenzene	1.0	1.0								U
1,2-Dichloroethane	0.50	1.0								U
1,2-Dichloropropane	1.0	1.0								U
1,3,5-Trimethylbenzene	1.0	1.0								U
1,3-Dichlorobenzene	1.0	1.0								U
1,3-Dichloropropane	1.0	1.0								U
1,4-Dichlorobenzene	1.0	1.0								U
2,2-Dichloropropane	0.50	1.0								U
2-Butanone	1.0	2.0								U
2-Chlorotoluene	1.0	1.0								U
2-Hexanone	2.0	2.0								U
4-Chlorotoluene	1.0	1.0								U
4-Isopropyltoluene	1.0	1.0								U
4-Methyl-2-pentanone	2.0	2.0								U
Acetone	1.0	2.0								U
Benzene	0.50	1.0								U
Bromobenzene	1.0	1.0								U
Bromochloromethane	0.50	1.0								U
Bromodichloromethane	0.50	1.0								U
Bromoform	1.0	1.0								U

ALS Houston, US Date: 01-Dec-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
WorkOrder: HS20110674

QC BATCH REPORT

Batch ID: R373373 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-201124** Units: **UG/L** Analysis Date: **24-Nov-2020 12:53**
Client ID: Run ID: **VOA6_373373** SeqNo: **5850864** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromomethane	1.0	1.0								U
Carbon disulfide	2.0	2.0								U
Carbon tetrachloride	1.0	1.0								U
Chlorobenzene	1.0	1.0								U
Chloroethane	0.50	1.0								U
Chloroform	0.50	1.0								U
Chloromethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
cis-1,3-Dichloropropene	0.50	1.0								U
Dibromochloromethane	0.50	1.0								U
Dibromomethane	0.50	1.0								U
Dichlorodifluoromethane	0.50	1.0								U
Ethylbenzene	1.0	1.0								U
Hexachlorobutadiene	1.0	1.0								U
Isopropylbenzene	1.0	1.0								U
m,p-Xylene	1.0	2.0								U
Methylene chloride	1.0	2.0								U
Naphthalene	0.50	1.0								U
n-Butylbenzene	1.0	1.0								U
n-Propylbenzene	1.0	1.0								U
o-Xylene	1.0	1.0								U
sec-Butylbenzene	0.50	1.0								U
Styrene	1.0	1.0								U
tert-Butylbenzene	0.50	1.0								U
Tetrachloroethene	1.0	1.0								U
Toluene	0.50	1.0								U
trans-1,2-Dichloroethene	0.50	1.0								U
trans-1,3-Dichloropropene	0.50	1.0								U
Trichloroethene	0.50	1.0								U
Trichlorofluoromethane	0.50	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*43.29*	*1.0*	*50*	*0*	*86.6*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*44.06*	*1.0*	*50*	*0*	*88.1*	*85 - 114*				
Surr: Dibromofluoromethane	*44.69*	*1.0*	*50*	*0*	*89.4*	*80 - 119*				

ALS Houston, US Date: 01-Dec-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
WorkOrder: HS20110674

QC BATCH REPORT

Batch ID: R373373 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-201124** Units: **UG/L** Analysis Date: **24-Nov-2020 12:53**
Client ID: Run ID: **VOA6_373373** SeqNo: **5850864** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*51.44*	*1.0*	*50*	*0*	*103*	*89 - 112*				

ALS Houston, US Date: 01-Dec-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
WorkOrder: HS20110674

QC BATCH REPORT

Batch ID: R373373 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-201124** Units: **UG/L** Analysis Date: **24-Nov-2020 11:50**
Client ID: Run ID: **VOA6_373373** SeqNo: **5850863** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	19.25	1.0	20	0	96.2	78 - 124				
1,1,1-Trichloroethane	19.91	1.0	20	0	99.6	74 - 131				
1,1,2,2-Tetrachloroethane	23.07	1.0	20	0	115	71 - 121				
1,1,2-Trichlor-1,2,2-trifluoroethane	16.91	1.0	20	0	84.6	70 - 136				
1,1,2-Trichloroethane	20.73	1.0	20	0	104	80 - 119				
1,1-Dichloroethane	19.52	1.0	20	0	97.6	77 - 125				
1,1-Dichloroethene	18.84	1.0	20	0	94.2	71 - 131				
1,1-Dichloropropene	19.4	1.0	20	0	97.0	78 - 125				
1,2,3-Trichlorobenzene	28.45	1.0	20	0	142	69 - 129				S
1,2,3-Trichloropropane	22.94	1.0	20	0	115	73 - 122				
1,2,4-Trichlorobenzene	23.29	1.0	20	0	116	69 - 130				
1,2,4-Trimethylbenzene	19.11	1.0	20	0	95.5	76 - 124				
1,2-Dibromo-3-chloropropane	27.54	1.0	20	0	138	62 - 128				S
1,2-Dibromoethane	21.11	1.0	20	0	106	77 - 121				
1,2-Dichlorobenzene	20.07	1.0	20	0	100	80 - 119				
1,2-Dichloroethane	20.48	1.0	20	0	102	73 - 128				
1,2-Dichloropropane	19.5	1.0	20	0	97.5	78 - 122				
1,3,5-Trimethylbenzene	17.84	1.0	20	0	89.2	75 - 124				
1,3-Dichlorobenzene	20.11	1.0	20	0	101	80 - 119				
1,3-Dichloropropane	21.48	1.0	20	0	107	80 - 119				
1,4-Dichlorobenzene	20.29	1.0	20	0	101	79 - 118				
2,2-Dichloropropane	18.92	1.0	20	0	94.6	60 - 139				
2-Butanone	46.81	2.0	40	0	117	56 - 143				
2-Chlorotoluene	19.26	1.0	20	0	96.3	79 - 122				
2-Hexanone	44.77	2.0	40	0	112	57 - 139				
4-Chlorotoluene	18.11	1.0	20	0	90.6	78 - 122				
4-Isopropyltoluene	17.65	1.0	20	0	88.2	77 - 127				
4-Methyl-2-pentanone	42.29	2.0	40	0	106	67 - 130				
Acetone	55.38	2.0	40	0	138	39 - 160				
Benzene	20.13	1.0	20	0	101	79 - 120				
Bromobenzene	20.56	1.0	20	0	103	80 - 120				
Bromochloromethane	19.94	1.0	20	0	99.7	78 - 123				
Bromodichloromethane	20.39	1.0	20	0	102	79 - 125				
Bromoform	20.41	1.0	20	0	102	66 - 130				

ALS Houston, US Date: 01-Dec-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
WorkOrder: HS20110674

QC BATCH REPORT

Batch ID: R373373 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-201124** Units: **UG/L** Analysis Date: **24-Nov-2020 11:50**
Client ID: Run ID: **VOA6_373373** SeqNo: **5850863** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromomethane	21.82	1.0	20	0	109	53 - 141				
Carbon disulfide	37.63	2.0	40	0	94.1	64 - 133				
Carbon tetrachloride	18.37	1.0	20	0	91.9	72 - 136				
Chlorobenzene	18.4	1.0	20	0	92.0	82 - 118				
Chloroethane	19.49	1.0	20	0	97.4	60 - 138				
Chloroform	18.8	1.0	20	0	94.0	79 - 124				
Chloromethane	18.15	1.0	20	0	90.7	50 - 139				
cis-1,2-Dichloroethene	18.75	1.0	20	0	93.8	78 - 123				
cis-1,3-Dichloropropene	20.39	1.0	20	0	102	75 - 124				
Dibromochloromethane	21.74	1.0	20	0	109	74 - 126				
Dibromomethane	20.07	1.0	20	0	100	79 - 123				
Dichlorodifluoromethane	19.07	1.0	20	0	95.4	32 - 152				
Ethylbenzene	18.46	1.0	20	0	92.3	79 - 121				
Hexachlorobutadiene	24.39	1.0	20	0	122	66 - 134				
Isopropylbenzene	17.23	1.0	20	0	86.1	72 - 131				
m,p-Xylene	36.58	2.0	40	0	91.4	80 - 121				
Methylene chloride	19.23	2.0	20	0	96.1	74 - 124				
Naphthalene	28.68	1.0	20	0	143	61 - 128				S
n-Butylbenzene	18.44	1.0	20	0	92.2	75 - 128				
n-Propylbenzene	18.22	1.0	20	0	91.1	76 - 126				
o-Xylene	18.39	1.0	20	0	91.9	78 - 122				
sec-Butylbenzene	17.17	1.0	20	0	85.9	77 - 126				
Styrene	18.2	1.0	20	0	91.0	78 - 123				
tert-Butylbenzene	18.27	1.0	20	0	91.3	78 - 124				
Tetrachloroethene	19.2	1.0	20	0	96.0	74 - 129				
Toluene	19.39	1.0	20	0	96.9	80 - 121				
trans-1,2-Dichloroethene	20.2	1.0	20	0	101	75 - 124				
trans-1,3-Dichloropropene	21.1	1.0	20	0	106	73 - 127				
Trichloroethene	19.91	1.0	20	0	99.6	79 - 123				
Trichlorofluoromethane	18.45	1.0	20	0	92.2	65 - 141				
Vinyl chloride	18.29	1.0	20	0	91.5	58 - 137				
Surr: 1,2-Dichloroethane-d4	*50.55*	*1.0*	*50*	*0*	*101*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*48.64*	*1.0*	*50*	*0*	*97.3*	*85 - 114*				
Surr: Dibromofluoromethane	*50.36*	*1.0*	*50*	*0*	*101*	*80 - 119*				

ALS Houston, US Date: 01-Dec-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
WorkOrder: HS20110674

QC BATCH REPORT

Batch ID: R373373 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-201124** Units: **UG/L** Analysis Date: **24-Nov-2020 11:50**
Client ID: Run ID: **VOA6_373373** SeqNo: **5850863** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*50.28*	*1.0*	*50*	*0*	*101*	*89 - 112*				

ALS Houston, US Date: 01-Dec-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
WorkOrder: HS20110674

QC BATCH REPORT

Batch ID: R373373 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS20110674-03MS** Units: **UG/L** Analysis Date: **24-Nov-2020 14:39**
Client ID: **35BWW12-201111** Run ID: **VOA6_373373** SeqNo: **5850867** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	18.95	1.0	20	0	94.8	78 - 124				
1,1,1-Trichloroethane	17.94	1.0	20	0	89.7	74 - 131				
1,1,2,2-Tetrachloroethane	21.24	1.0	20	0	106	71 - 121				
1,1,2-Trichlor-1,2,2-trifluoroethane	18.3	1.0	20	0	91.5	70 - 136				
1,1,2-Trichloroethane	18.49	1.0	20	0	92.5	80 - 119				
1,1-Dichloroethane	17.24	1.0	20	0	86.2	77 - 125				
1,1-Dichloroethene	16.74	1.0	20	0	83.7	71 - 131				
1,1-Dichloropropene	18.46	1.0	20	0	92.3	78 - 125				
1,2,3-Trichlorobenzene	22.75	1.0	20	0	114	69 - 129				
1,2,3-Trichloropropane	20.52	1.0	20	0	103	73 - 122				
1,2,4-Trichlorobenzene	21.33	1.0	20	0	107	69 - 130				
1,2,4-Trimethylbenzene	21.86	1.0	20	0	109	76 - 124				
1,2-Dibromo-3-chloropropane	22.39	1.0	20	0	112	62 - 128				
1,2-Dibromoethane	18.29	1.0	20	0	91.4	77 - 121				
1,2-Dichlorobenzene	19.86	1.0	20	0	99.3	80 - 119				
1,2-Dichloroethane	18.22	1.0	20	0	91.1	73 - 128				
1,2-Dichloropropane	17.59	1.0	20	0	88.0	78 - 122				
1,3,5-Trimethylbenzene	19.49	1.0	20	0	97.5	75 - 124				
1,3-Dichlorobenzene	20.6	1.0	20	0	103	80 - 119				
1,3-Dichloropropane	19.47	1.0	20	0	97.3	80 - 119				
1,4-Dichlorobenzene	21.34	1.0	20	0	107	79 - 118				
2,2-Dichloropropane	17.28	1.0	20	0	86.4	60 - 139				
2-Butanone	31.5	2.0	40	0	78.8	56 - 143				
2-Chlorotoluene	20.33	1.0	20	0	102	79 - 122				
2-Hexanone	37.17	2.0	40	0	92.9	57 - 139				
4-Chlorotoluene	19.47	1.0	20	0	97.3	78 - 122				
4-Isopropyltoluene	21.22	1.0	20	0	106	77 - 127				
4-Methyl-2-pentanone	36.82	2.0	40	0	92.1	67 - 130				
Acetone	27.97	2.0	40	0	69.9	39 - 160				
Benzene	18.66	1.0	20	0	93.3	79 - 120				
Bromobenzene	21.61	1.0	20	0	108	80 - 120				
Bromochloromethane	16.08	1.0	20	0	80.4	78 - 123				
Bromodichloromethane	18.69	1.0	20	0	93.5	79 - 125				
Bromoform	18.55	1.0	20	0	92.7	66 - 130				

ALS Houston, US Date: 01-Dec-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
WorkOrder: HS20110674

QC BATCH REPORT

Batch ID: R373373 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS20110674-03MS** Units: **UG/L** Analysis Date: **24-Nov-2020 14:39**
Client ID: **35BWW12-201111** Run ID: **VOA6_373373** SeqNo: **5850867** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromomethane	18.64	1.0	20	0	93.2	53 - 141				
Carbon disulfide	31.29	2.0	40	0	78.2	64 - 133				
Carbon tetrachloride	19.16	1.0	20	0	95.8	72 - 136				
Chlorobenzene	18.4	1.0	20	0	92.0	82 - 118				
Chloroethane	16.35	1.0	20	0	81.8	60 - 138				
Chloroform	16.96	1.0	20	0	84.8	79 - 124				
Chloromethane	14.72	1.0	20	0	73.6	50 - 139				
cis-1,2-Dichloroethene	16.76	1.0	20	0	83.8	78 - 123				
cis-1,3-Dichloropropene	17.34	1.0	20	0	86.7	75 - 124				
Dibromochloromethane	19.1	1.0	20	0	95.5	74 - 126				
Dibromomethane	18.71	1.0	20	0	93.5	79 - 123				
Dichlorodifluoromethane	13.47	1.0	20	0	67.4	32 - 152				
Ethylbenzene	19.68	1.0	20	0	98.4	79 - 121				
Hexachlorobutadiene	19.28	1.0	20	0	96.4	66 - 134				
Isopropylbenzene	19.77	1.0	20	0	98.8	72 - 131				
m,p-Xylene	37.01	2.0	40	0	92.5	80 - 121				
Methylene chloride	15.69	2.0	20	0	78.4	74 - 124				
Naphthalene	21.96	1.0	20	0	110	61 - 128				
n-Butylbenzene	20.03	1.0	20	0	100	75 - 128				
n-Propylbenzene	21.15	1.0	20	0	106	76 - 126				
o-Xylene	19.17	1.0	20	0	95.8	78 - 122				
sec-Butylbenzene	20.42	1.0	20	0	102	77 - 126				
Styrene	18.32	1.0	20	0	91.6	78 - 123				
tert-Butylbenzene	20.52	1.0	20	0	103	78 - 124				
Tetrachloroethene	23.46	1.0	20	3.15	102	74 - 129				
Toluene	20.11	1.0	20	0	101	80 - 121				
trans-1,2-Dichloroethene	16.66	1.0	20	0	83.3	75 - 124				
trans-1,3-Dichloropropene	17.93	1.0	20	0	89.6	73 - 127				
Trichloroethene	19.02	1.0	20	0	95.1	79 - 123				
Trichlorofluoromethane	16.92	1.0	20	0	84.6	65 - 141				
Vinyl chloride	15.37	1.0	20	0	76.9	58 - 137				
Surr: 1,2-Dichloroethane-d4	*45.07*	*1.0*	*50*	*0*	*90.1*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*46.62*	*1.0*	*50*	*0*	*93.2*	*85 - 114*				
Surr: Dibromofluoromethane	*45.29*	*1.0*	*50*	*0*	*90.6*	*80 - 119*				

ALS Houston, US Date: 01-Dec-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
WorkOrder: HS20110674

QC BATCH REPORT

Batch ID: R373373 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS20110674-03MS** Units: **UG/L** Analysis Date: **24-Nov-2020 14:39**
Client ID: **35BWW12-201111** Run ID: **VOA6_373373** SeqNo: **5850867** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*51.08*	*1.0*	*50*	*0*	*102*	*89 - 112*				

ALS Houston, US Date: 01-Dec-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
WorkOrder: HS20110674

QC BATCH REPORT

Batch ID: R373373 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS20110674-03MSD** Units: **UG/L** Analysis Date: **24-Nov-2020 15:00**
Client ID: **35BWW12-201111** Run ID: **VOA6_373373** SeqNo: **5850868** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	18.7	1.0	20	0	93.5	78 - 124	18.95	1.37	20	
1,1,1-Trichloroethane	17.95	1.0	20	0	89.8	74 - 131	17.94	0.057	20	
1,1,2,2-Tetrachloroethane	21.65	1.0	20	0	108	71 - 121	21.24	1.91	20	
1,1,2-Trichlor-1,2,2-trifluoroethane	17.35	1.0	20	0	86.8	70 - 136	18.3	5.33	20	
1,1,2-Trichloroethane	18.87	1.0	20	0	94.3	80 - 119	18.49	2	20	
1,1-Dichloroethane	16.97	1.0	20	0	84.8	77 - 125	17.24	1.59	20	
1,1-Dichloroethene	16.48	1.0	20	0	82.4	71 - 131	16.74	1.57	20	
1,1-Dichloropropene	18.64	1.0	20	0	93.2	78 - 125	18.46	0.986	20	
1,2,3-Trichlorobenzene	26.8	1.0	20	0	134	69 - 129	22.75	16.4	20	S
1,2,3-Trichloropropane	20.89	1.0	20	0	104	73 - 122	20.52	1.77	20	
1,2,4-Trichlorobenzene	24.42	1.0	20	0	122	69 - 130	21.33	13.5	20	
1,2,4-Trimethylbenzene	20.75	1.0	20	0	104	76 - 124	21.86	5.22	20	
1,2-Dibromo-3-chloropropane	24.06	1.0	20	0	120	62 - 128	22.39	7.19	20	
1,2-Dibromoethane	19.45	1.0	20	0	97.2	77 - 121	18.29	6.14	20	
1,2-Dichlorobenzene	19.85	1.0	20	0	99.2	80 - 119	19.86	0.0863	20	
1,2-Dichloroethane	18.44	1.0	20	0	92.2	73 - 128	18.22	1.19	20	
1,2-Dichloropropane	17.17	1.0	20	0	85.8	78 - 122	17.59	2.45	20	
1,3,5-Trimethylbenzene	19.36	1.0	20	0	96.8	75 - 124	19.49	0.698	20	
1,3-Dichlorobenzene	20.35	1.0	20	0	102	80 - 119	20.6	1.19	20	
1,3-Dichloropropane	19.39	1.0	20	0	97.0	80 - 119	19.47	0.374	20	
1,4-Dichlorobenzene	21.23	1.0	20	0	106	79 - 118	21.34	0.496	20	
2,2-Dichloropropane	16.47	1.0	20	0	82.4	60 - 139	17.28	4.75	20	
2-Butanone	31.88	2.0	40	0	79.7	56 - 143	31.5	1.19	20	
2-Chlorotoluene	20.22	1.0	20	0	101	79 - 122	20.33	0.561	20	
2-Hexanone	38.94	2.0	40	0	97.4	57 - 139	37.17	4.65	20	
4-Chlorotoluene	18.7	1.0	20	0	93.5	78 - 122	19.47	4.02	20	
4-Isopropyltoluene	20.59	1.0	20	0	103	77 - 127	21.22	3.02	20	
4-Methyl-2-pentanone	40.32	2.0	40	0	101	67 - 130	36.82	9.06	20	
Acetone	28.87	2.0	40	0	72.2	39 - 160	27.97	3.17	20	
Benzene	18.4	1.0	20	0	92.0	79 - 120	18.66	1.42	20	
Bromobenzene	21.23	1.0	20	0	106	80 - 120	21.61	1.8	20	
Bromochloromethane	16.05	1.0	20	0	80.2	78 - 123	16.08	0.21	20	
Bromodichloromethane	18.19	1.0	20	0	91.0	79 - 125	18.69	2.71	20	
Bromoform	20.11	1.0	20	0	101	66 - 130	18.55	8.1	20	

ALS Houston, US Date: 01-Dec-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
WorkOrder: HS20110674

QC BATCH REPORT

Batch ID: R373373 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS20110674-03MSD** Units: **UG/L** Analysis Date: **24-Nov-2020 15:00**
Client ID: **35BWW12-201111** Run ID: **VOA6_373373** SeqNo: **5850868** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Bromomethane	17.38	1.0	20	0	86.9	53 - 141	18.64	7.02	20	
Carbon disulfide	29.73	2.0	40	0	74.3	64 - 133	31.29	5.11	20	
Carbon tetrachloride	18.7	1.0	20	0	93.5	72 - 136	19.16	2.42	20	
Chlorobenzene	18.76	1.0	20	0	93.8	82 - 118	18.4	1.93	20	
Chloroethane	15.62	1.0	20	0	78.1	60 - 138	16.35	4.58	20	
Chloroform	16.51	1.0	20	0	82.5	79 - 124	16.96	2.67	20	
Chloromethane	14.24	1.0	20	0	71.2	50 - 139	14.72	3.32	20	
cis-1,2-Dichloroethene	16.7	1.0	20	0	83.5	78 - 123	16.76	0.391	20	
cis-1,3-Dichloropropene	16.85	1.0	20	0	84.3	75 - 124	17.34	2.84	20	
Dibromochloromethane	19.3	1.0	20	0	96.5	74 - 126	19.1	1.08	20	
Dibromomethane	18.17	1.0	20	0	90.9	79 - 123	18.71	2.9	20	
Dichlorodifluoromethane	13.38	1.0	20	0	66.9	32 - 152	13.47	0.675	20	
Ethylbenzene	20.29	1.0	20	0	101	79 - 121	19.68	3.06	20	
Hexachlorobutadiene	20.95	1.0	20	0	105	66 - 134	19.28	8.33	20	
Isopropylbenzene	20.07	1.0	20	0	100	72 - 131	19.77	1.54	20	
m,p-Xylene	37.17	2.0	40	0	92.9	80 - 121	37.01	0.431	20	
Methylene chloride	16.08	2.0	20	0	80.4	74 - 124	15.69	2.48	20	
Naphthalene	26.5	1.0	20	0	133	61 - 128	21.96	18.7	20	S
n-Butylbenzene	19.91	1.0	20	0	99.6	75 - 128	20.03	0.609	20	
n-Propylbenzene	20.33	1.0	20	0	102	76 - 126	21.15	3.95	20	
o-Xylene	18.81	1.0	20	0	94.0	78 - 122	19.17	1.88	20	
sec-Butylbenzene	19.81	1.0	20	0	99.0	77 - 126	20.42	3.05	20	
Styrene	18.33	1.0	20	0	91.6	78 - 123	18.32	0.0497	20	
tert-Butylbenzene	19.98	1.0	20	0	99.9	78 - 124	20.52	2.68	20	
Tetrachloroethene	23.41	1.0	20	3.15	101	74 - 129	23.46	0.236	20	
Toluene	19.97	1.0	20	0	99.9	80 - 121	20.11	0.658	20	
trans-1,2-Dichloroethene	16.4	1.0	20	0	82.0	75 - 124	16.66	1.57	20	
trans-1,3-Dichloropropene	18.27	1.0	20	0	91.3	73 - 127	17.93	1.9	20	
Trichloroethene	18.55	1.0	20	0	92.8	79 - 123	19.02	2.5	20	
Trichlorofluoromethane	16.52	1.0	20	0	82.6	65 - 141	16.92	2.39	20	
Vinyl chloride	14.59	1.0	20	0	72.9	58 - 137	15.37	5.25	20	
Surr: 1,2-Dichloroethane-d4	*45.06*	*1.0*	*50*	*0*	*90.1*	*81 - 118*	*45.07*	*0.0411*	*20*	
Surr: 4-Bromofluorobenzene	*46.47*	*1.0*	*50*	*0*	*92.9*	*85 - 114*	*46.62*	*0.324*	*20*	
Surr: Dibromofluoromethane	*45.29*	*1.0*	*50*	*0*	*90.6*	*80 - 119*	*45.29*	*0.00174*	*20*	

ALS Houston, US Date: 01-Dec-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
WorkOrder: HS20110674

QC BATCH REPORT

Batch ID: R373373 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS20110674-03MSD** Units: **UG/L** Analysis Date: **24-Nov-2020 15:00**
Client ID: **35BWW12-201111** Run ID: **VOA6_373373** SeqNo: **5850868** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*51.65*	*1.0*	*50*	*0*	*103*	*89 - 112*	*51.08*	*1.13*	*20*	

The following samples were analyzed in this batch:

HS20110674-01	HS20110674-02	HS20110674-03	HS20110674-04
HS20110674-05	HS20110674-06	HS20110674-07	HS20110674-08

ALS Houston, US Date: 01-Dec-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
WorkOrder: HS20110674

QC BATCH REPORT

Batch ID: R372810 (0) **Instrument: ICS-Integrion** **Method: ANIONS BY SW9056A**

MBLK Sample ID: **MBLK-111220** Units: **mg/L** Analysis Date: **14-Nov-2020 23:54**
Client ID: Run ID: **ICS-Integrion_372810** SeqNo: **5836846** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	0.500	0.500								U
Nitrogen, Nitrate (As N)	0.100	0.100								U
Sulfate	0.500	0.500								U

LCS Sample ID: **LCS-111220** Units: **mg/L** Analysis Date: **15-Nov-2020 00:12**
Client ID: Run ID: **ICS-Integrion_372810** SeqNo: **5836847** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	20	0.500	20	0	100	80 - 120				
Nitrogen, Nitrate (As N)	4.012	0.100	4	0	100	80 - 120				
Sulfate	20.1	0.500	20	0	100	80 - 120				

MS Sample ID: **HS20110674-03MS** Units: **mg/L** Analysis Date: **14-Nov-2020 09:27**
Client ID: **35BWW12-201111** Run ID: **ICS-Integrion_372810** SeqNo: **5836898** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	16.29	0.500	10	6.252	100	80 - 120				
Nitrogen, Nitrate (As N)	2.048	0.100	2	0.0318	101	80 - 120				
Sulfate	45.29	0.500	10	35.85	94.4	80 - 120				

MS Sample ID: **HS20110671-12MS** Units: **mg/L** Analysis Date: **13-Nov-2020 22:19**
Client ID: Run ID: **ICS-Integrion_372810** SeqNo: **5836840** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	27.39	0.500	10	17.58	98.1	80 - 120				
Nitrogen, Nitrate (As N)	2.615	0.100	2	0.6795	96.8	80 - 120				
Sulfate	84.69	0.500	10	76.52	81.7	80 - 120				O

ALS Houston, US Date: 01-Dec-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
WorkOrder: HS20110674

QC BATCH REPORT

Batch ID: R372810 (0) **Instrument: ICS-Integrion** **Method: ANIONS BY SW9056A**

MSD Sample ID: **HS20110674-03MSD** Units: **mg/L** Analysis Date: **14-Nov-2020 09:45**
Client ID: **35BWW12-201111** Run ID: **ICS-Integrion_372810** SeqNo: **5836899** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	16.2	0.500	10	6.252	99.4	80 - 120	16.29	0.566	20	
Nitrogen, Nitrate (As N)	2.036	0.100	2	0.0318	100	80 - 120	2.048	0.592	20	
Sulfate	45.05	0.500	10	35.85	92.0	80 - 120	45.29	0.519	20	

MSD Sample ID: **HS20110671-12MSD** Units: **mg/L** Analysis Date: **13-Nov-2020 22:37**
Client ID: Run ID: **ICS-Integrion_372810** SeqNo: **5836841** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	27.64	0.500	10	17.58	101	80 - 120	27.39	0.883	20	
Nitrogen, Nitrate (As N)	2.648	0.100	2	0.6795	98.4	80 - 120	2.615	1.24	20	
Sulfate	86.42	0.500	10	76.52	99.0	80 - 120	84.69	2.02	20	O

The following samples were analyzed in this batch: HS20110674-01 HS20110674-02 HS20110674-03

ALS Houston, US Date: 01-Dec-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
WorkOrder: **HS20110674**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL/SDL

Acronym	Description
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitaion Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	20-030-0	26-Mar-2021
California	2919, 2020-2021	30-Apr-2021
Dept of Defense	PJLA L20-507	22-Dec-2021
Florida	E87611-30-07/01/2020	30-Jun-2021
Illinois	2000322020-4	09-May-2021
Kansas	E-10352 2020-2021	31-Jul-2021
Kentucky	123043, 2020-2021	30-Apr-2021
Louisiana	03087, 2020-2021	30-Jun-2021
North Carolina	624-2020	31-Dec-2020
North Dakota	R-193 2020-2021	30-Apr-2021
Texas	T104704231-20-26	30-Apr-2021

ALS Houston, US Date: 01-Dec-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant 37
Work Order: HS20110674

SAMPLE TRACKING

Lab Samp ID	Client Sample ID	Action	Date	Person	New Location
HS20110674-01	35BWW08-201111	Login	11/13/2020 10:58:20 AM	PMG	WET280
HS20110674-01	35BWW08-201111	Login	11/13/2020 10:58:20 AM	PMG	VOA072
HS20110674-01	35BWW08-201111	Login	11/13/2020 10:58:20 AM	PMG	Sub
HS20110674-01	35BWW08-201111	Login	11/13/2020 10:58:20 AM	PMG	Sub

ALS Houston, US Date: 01-Dec-20

Sample Receipt Checklist

Work Order ID: HS20110674 **Date/Time Received:** **12-Nov-2020 10:15**

Client Name: CBI-Houston **Received by:** **Jared R. Makan**

Completed By:	/S/ Paresh M. Giga	13-Nov-2020 11:08	**Reviewed by:**	/S/ RJ Modashia	16-Nov-2020 10:08
	eSignature	Date/Time		eSignature	Date/Time

Matrices: **GW/Water** Carrier name: **FedEx**

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐	
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑	
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	Yes ☐	No ☐	Not Present ☑	
Chain of custody present?	Yes ☑	No ☐	2 Page(s)	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	COC IDs:None	
Samplers name present on COC?	Yes ☐	No ☑		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☐	No ☑		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐		
Temperature(s)/Thermometer(s):	0.3C U/c		IR25	
Cooler(s)/Kit(s):	4968			
Date/Time sample(s) sent to storage:	11/12/2020 18:00			
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐	
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑	
pH adjusted?	Yes ☐	No ☐	N/A ☑	
pH adjusted by:				

Login Notes: Nitrates missed by login
Proceed per C/G.
1 x Trip Blank vial received broken

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

CHAIN OF CUSTODY

Name Of Lab Shipping To: ALS 10450 Stancliff Rd. Suite 210 Houston, TX. 77099 (281) 530-5656 ATTN: R.J Modashia

Project: APTIM
LONGHORN ARMY AMMN. PLANT (LHAAP)
GROUNDWATER TREATMENT PLANT (GWTP)
KARNACK, TEXAS

Project No. 501032

Job: **LHAAP 37 November 2020**

Prepared By: Scott Beesinger

P.O. Number

HS20110674
Aptim Environmental & Infrastucture, Inc.
Longhorn Army Ammunition Plant 37

Field Sample I.D.	Sample Matrix	Date / Time	MS / MSD	No. OF CONTAINERS	VOC by SW 8260B	TOC by SM5310C	MEE by RSK 175	Carbon Dioxide by RSK 175	Anions (Chloride, Sulfate, and Nitrate) by SW9056	Remarks (Preservatives, etc.)	Lab I.D.#
35BWW08-201111	WG	11/4/20 0710		12	X	X	X	X	X		
35BWW08-201111-FD	WG	11/4/20 0710		12	X	X	X	X	X		
35BWW12-201111	WG	11/11/20 0805		12	X	X	X	X	X		
35BWW12-201111-MS	WG	11/4/20 0805		12	X	X	X	X	X		
35BWW12-201111-MSD	WG	11/4/20 0805		12	X	X	X	X	X		
35BWW07-201111	WG	11/11/20 0905		3	X						
35BWW13-201111	WG	11/11/20 0945		3	X						
35BWW16-201111	WG	11/11/20 1030		3	X						

Additional Remarks: Standard TAT on all parameters. Please email results to Susan.Huang@aptim.com and invoices to fedinvoices@aptim.com

Relinquished By:	Date	Time	Received By:	Date	Time	Relinquished By:	Date	Time	Received By:	Date	Time
Scott Beesinger	11/11/20	1430	JM PM	11-12-20	10:15						

For Lab Use Only

Received At Lab By:	Date	Time	Airbill No.	Opened By:	Date	Time	Temp of Container	Seal No.	Condition

Remarks:

4966 0.3C IR25 CFO

(Word) S:\1-ces\Forms\Chain of Custody - BiWeekly

CHAIN OF CUSTODY

Name Of Lab Shipping To: ALS 10450 Stancliff Rd. Suite 210 Houston, TX. 77099 (281) 530-5656 ATTN: R.J Modashia

Project: APTIM
LONGHORN ARMY AMMN. PLANT (LHAAP)
GROUNDWATER TREATMENT PLANT (GWTP)
KARNACK, TEXAS

Project No. 501032

Job: **LHAAP 37 November 2020**

Prepared By: Scott Beesinger

P.O. Number

HS20110674
Aptim Environmental & Infrastucture. Inc.
Longhorn Army Ammunition Plant 37

Field Sample I.D. / Time	Sample Matrix	Date /	MS / MSD	No. OF CONTAINERS	VOC by SW 8260B	TOC by SM5310C	MEE by RSK 175	Carbon Dioxide by RSK 175	Anions (Chloride, Sulfate, and Nitrate) by SW9056					Remarks (Preservatives, etc.)	Lab I.D.#
					Analyses										
35BWW17-201111	WG	11/11/20/1110		3	X										
TRIP BLANK-201111	W	11/11/20		2	X										

Additional Remarks: Standard TAT on all parameters. Please email results to Susan.Huang@aptim.com and invoices to fedinvoices@aptim.com

Relinquished By:	Date	Time	Received By:	Date	Time	Relinquished By:	Date	Time	Received By:	Date	Time
Scott Beesinger	11/11/20	1430	JM PM	11/12/20	10:15						

For Lab Use Only

Received At Lab By:	Date	Time	Airbill No.	Opened By:	Date	Time	Temp of Container	Seal No.	Condition

Remarks:

4 4 6E 03C 1R25 CF0

(Word) S:\1-ces\Forms\Chain of Custody - BiWeekly

ALS
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887

4968

CUSTODY SEAL

Date: 11/11/20 Time: 1430
Name: Scott Beesinger
Company: Battle

Seal Broken By:
Date: 11/12/20

4968 NOV 12 2020

Must Deliver Next Business Day
Time and Tempature Sensitive!

4968

ORIGIN ID:SGRA (903) 930-6193
SCOTT BEESINGER
APTIM
1203-B EAST GRAND AVE.
PMB202
MARSHALL, TX 75670
UNITED STATES US

SHIP DATE: 23OCT20
ACTWGT: 1.00 LB MAN
CAD: 300130/CAFE3211
DIMS: 19x16x13 IN

TO CLIENT SERVICES
ALS LABORATORY GROUP
10450 STANCLIFF ROAD
SUITE 210
HOUSTON TX 77099
(281) 530-5656
REF: LHAAP-37-BO 74510-RJ

RMA:

FedEx Express

TRK# 0221 1891 8881 9513

THU 12 NOV AA
PRIORITY OVERNIGHT

AB SGRA

77099
TX-US
IAH

FID: 5090257 11Nov2020 GGGA 56DG5/BA09/05A2

ALS Environmental
ALS Group USA, Corp
1317 South 13th Avenue
Kelso, WA 98626
T : +1 360 577 7222
F : +1 360 636 1068
www.alsglobal.com

November 30, 2020

Analytical Report for Service Request No: K2010645

RJ Modashia
ALS Laboratory Group
10450 Stancliff Road
Suite 210
Houston, TX 77099-4338

RE: HS20110674

Dear RJ,

Enclosed are the results of the sample(s) submitted to our laboratory November 17, 2020
For your reference, these analyses have been assigned our service request number **K2010645.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please contact me if you have any questions. My extension is 3350. You may also contact me via email at Kelley.Lovejoy@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Kelley Lovejoy

Kelley Lovejoy
Project Manager

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Environmental
ALS Group USA, Corp
1317 South 13th Avenue
Kelso, WA 98626
T : +1 360 577 7222
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www.alsglobal.com

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Acronyms
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General Chemistry

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LOD	Limit of Detection
LOQ	Limit of Quantitation
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.
H	The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
J	The result is an estimated value.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimated value.
J	The result is an estimated value.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso
State Certifications, Accreditations, and Licenses

Agency	Web Site	Number
Alaska DEH	http://dec.alaska.gov/eh/lab/cs/csapproval.htm	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2795
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L16-58-R4
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Hawaii DOH	http://health.hawaii.gov/	-
ISO 17025	http://www.pjlabs.com/	L16-57
Louisiana DEQ	http://www.deq.louisiana.gov/page/la-lab-accreditation	03016
Maine DHS	http://www.maine.gov/dhhs/	WA01276
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Nevada DEP	http://ndep.nv.gov/bsdw/labservice.htm	WA01276
New Jersey DEP	http://www.nj.gov/dep/enforcement/oqa.html	WA005
New York - DOH	https://www.wadsworth.org/regulatory/elap	12060
North Carolina DEQ	https://deq.nc.gov/about/divisions/water-resources/water-resources-data/water-sciences-home-page/laboratory-certification-branch/non-field-lab-certification	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA100010
South Carolina DHEC	http://www.scdhec.gov/environment/EnvironmentalLabCertification/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704427
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C544
Wyoming (EPA Region 8)	https://www.epa.gov/region8-waterops/epa-region-8-certified-drinking-water-	-
Kelso Laboratory Website	www.alsglobal.com	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.ALSGlobal.com or at the accreditation bodies web site.
Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/anlayte is offered by that state.

Case Narrative

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

1317 South 13th Ave, Kelso, WA 98626 | 1-360-577-7222 | www.alsglobal.com

Client: ALS Environmental - US
Project: HS20110674
Sample Matrix: Ground Water

Service Request: K2010645
Date Received: 11/17/2020

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples for the Tier level II requested by the client.

Sample Receipt:

Three ground water samples were received for analysis at ALS Environmental on 11/17/2020. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

General Chemistry:

No significant anomalies were noted with this analysis.

Approved by Kelley Lovejoy Date 11/30/2020

Chain of Custody

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

K2010645

10450 Stancliff Rd, Ste 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887
www.alsglobal.com

Subcontract Chain of Custody

SAMPLING STATE: **Dept of Defense** **COC ID:** **15161**

SUBCONTRACT TO:

ALS Environmental Kelso
1317 S. 13th Avenue
Kelso, WA 98626 **Phone:** +1 360 501 3312

CUSTOMER INFORMATION:

Company:	ALS Houston
Contact:	RJ Modashia
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Email:	RJ.Modashia@alsglobal.com
Alternate Contact:	
Email:	

INVOICE INFORMATION:

Company:	ALS Houston
Contact:	Accounts Payable
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Reference:	HS20110674
TSR:	Sonia West

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS20110674-01**	**35BWW08-201111**	**Groundwater**	**11 Nov 2020 07:10**
	TOC: Provide Level II & DOD Level IV/EQuIS APTIM EDD			30 Nov 2020
2.	**HS20110674-02**	**35BWW08-201111-FD**	**Groundwater**	**11 Nov 2020 07:10**
	TOC: Provide Level II & DOD Level IV/EQuIS APTIM EDD			30 Nov 2020
3.	**HS20110674-03**	**35BWW12-201111**	**Groundwater**	**11 Nov 2020 08:05**
	TOC: Provide Level II & DOD Level IV/EQuIS APTIM EDD			30 Nov 2020

Comments: Please analyze for the analysis listed above.
Send report to the emails shown above.
HS20110674-03 = MS/MSD

QC Level: DOD IV (DoD Data Package)

Relinquished By: _____ Date/Time: 11/16/2020 1800

Received By: _____ Date/Time: 11/17/2020 1000

Cooler ID(s): _____ Temperature(s): _____

PM KL

Cooler Receipt and Preservation Form

Client ALS HOUSTON Service Request K20 10645

Received: NOV 17 2020 Opened: NOV 17 2020 By: CG Unloaded: NOV 17 2020 By: CG

1. Samples were received via? *USPS* ~~*Fed Ex*~~ *UPS* *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) *Cooler* *Box* *Envelope* *Other* _____ *NA*
3. Were custody seals on coolers? NA (Y) N If yes, how many and where? 2 Front
   If present, were custody seals intact? (Y) N If present, were they signed and dated? (Y) N
4. Was a Temperature Blank present in cooler? NA (Y) N If yes, notate the temperature in the appropriate column below:
   If no, take the temperature of a representative sample bottle contained within the cooler; notate in the column "Sample Temp":
5. Were samples received within the method specified temperature ranges? NA (Y) N
   If no, were they received on ice and same day as collected? If not, notate the cooler # below and notify the PM. (NA) Y N

If applicable, tissue samples were received: *Frozen* *Partially Thawed* *Thawed*

Temp Blank	Sample Temp	IR Gun	Cooler #/COC ID / NA	Out of temp indicate with "X"	PM Notified If out of temp	Tracking Number NA	Filed
0.6	—	IR01	15161	—	—	1891 8882 8460	

6. Packing material: *Inserts* (*Baggies*) (*Bubble Wrap*) *Gel Packs* *Wet Ice* *Dry Ice* *Sleeves* _____
7. Were custody papers properly filled out (ink, signed, etc.)? NA (Y) N
8. Were samples received in good condition (unbroken) NA (Y) N
9. Were all sample labels complete (ie, analysis, preservation, etc.)? NA (Y) N
10. Did all sample labels and tags agree with custody papers? NA (Y) N
11. Were appropriate bottles/containers and volumes received for the tests indicated? NA (Y) N
12. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* NA (Y) N
13. Were VOA vials received without headspace? *Indicate in the table below.* (NA) Y N
14. Was C12/Res negative? (NA) Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count Bottle Type	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

Notes, Discrepancies, Resolutions: _____

General Chemistry

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	K2010645
Project:	HS20110674	**Date Collected:**	11/11/20
Sample Matrix:	Ground Water	**Date Received:**	11/17/20
Analysis Method:	SM 5310 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Carbon, Total Organic

Sample Name	Lab Code	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
35BWW08-201111	K2010645-001	**0.99**	0.50	0.20	0.07	1	11/19/20 17:48	
35BWW08-201111-FD	K2010645-002	**0.74**	0.50	0.20	0.07	1	11/19/20 17:48	
35BWW12-201111	K2010645-003	**0.93**	0.50	0.20	0.07	1	11/19/20 17:48	
Method Blank	K2010645-MB	ND U	0.50	0.20	0.07	1	11/19/20 17:48	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K2010645
Project	HS20110674	**Date Collected:**	11/11/20
Sample Matrix:	Ground Water	**Date Received:**	11/17/20
		Date Analyzed:	11/19/20

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	35BWW12-201111	**Units:**	mg/L
Lab Code:	K2010645-003	**Basis:**	NA

Analyte Name	Analysis Method	LOQ	LOD	MDL	Sample Result	Duplicate Sample K2010645-003DUP Result	Average	RPD	RPD Limit
Carbon, Total Organic	SM 5310 C	0.50	0.20	0.07	0.93	0.83	0.882	11 #	10

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K2010645
Project:	HS20110674	**Date Collected:**	11/11/20
Sample Matrix:	Ground Water	**Date Received:**	11/17/20
		Date Analyzed:	11/19/20
		Date Extracted:	NA

Matrix Spike Summary
Carbon, Total Organic

Sample Name:	35BWW12-201111	**Units:**	mg/L
Lab Code:	K2010645-003	**Basis:**	NA
Analysis Method:	SM 5310 C		
Prep Method:	None		

Matrix Spike
K2010645-003MS

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Carbon, Total Organic	0.93	27.3	25.0	106	83-117

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K2010645
Project:	HS20110674	**Date Analyzed:**	11/19/20
Sample Matrix:	Ground Water	**Date Extracted:**	NA

Lab Control Sample Summary
Carbon, Total Organic

Analysis Method:	SM 5310 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	704227

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K2010645-LCS	24.3	25.0	97	83-117

LABORATORY REPORT

November 25, 2020

RJ Modashia
ALS Laboratory Group
10450 Stancliff Road Suite 210
Houston, TX 77099-4338

RE: HS20110674

Dear RJ:

Enclosed are the results of the samples submitted to our laboratory on November 18, 2020. For your reference, these analyses have been assigned our service request number P2006524.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

ALS | Environmental

By Hayden Akers at 3:27 pm, Nov 25, 2020

Hayden Akers
Project Manager

Client: ALS Laboratory Group Service Request No: P2006524
Project: HS20110674

CASE NARRATIVE

The samples were received intact under chain of custody on November 18, 2020 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Carbon Dioxide Analysis

The samples were analyzed for carbon dioxide using a gas chromatograph equipped with a thermal conductivity detector (TCD). A known amount of liquid was displaced by injecting 8.0 milliliters of helium creating a headspace in the sample vial. Each sample vial was agitated using a sonic disrupter for fifteen minutes and then allowed to equilibrate for at least four hours. A volume of the headspace was withdrawn using a gas-tight syringe and analyzed using a manual injection technique. The amount of dissolved gases (carbon dioxide) in the original sample was calculated using Henry's Law. This method was performed with guidance from RSK 175 as described in laboratory SOP VOA-DISGAS. This analyte is included on the laboratory's NELAP and DoD-ELAP scope of accreditation.

Manual integrations were performed on the following samples and analyte. Refer to the raw data for additional information.

Sample Identification(s)	Analyte(s)
P2006524-001	Carbon Dioxide
P2006524-002	Carbon Dioxide
P2006524-003	Carbon Dioxide
P2006524-003 MS	Carbon Dioxide
P2006524-003 MSD	Carbon Dioxide

The recoveries for carbon dioxide for the matrix spike and its duplicate were outside of the DoD quality control limits. However all quality control parameters were met with the laboratory control sample and its duplicate.

Client: ALS Laboratory Group Service Request No: P2006524
Project: HS20110674

Methane, Ethene and Ethane Analysis

The samples were analyzed for methane, ethene, and ethane using a gas chromatograph equipped with a flame ionization detector (FID). A known amount of liquid was displaced by injecting 8.0 milliliters of helium creating a headspace in the sample vial. Each sample vial was agitated using a sonic disrupter for fifteen minutes and then allowed to equilibrate for at least two hours. A volume of the headspace was withdrawn using a gas-tight syringe and analyzed using a manual injection technique. The amount of dissolved gases (methane, ethene and ethane) in the original sample was calculated using Henry's Law. This method was performed with guidance from RSK 175. This method is included on the laboratory's NELAP and DoD-ELAP scope of accreditation. Any analytes flagged with an X are not included on the laboratory's NELAP or DoD-ELAP accreditation.

The recoveries for methane for the matrix spike and its duplicate were outside of the DoD quality control limits. However all quality control parameters were met with the laboratory control sample and its duplicate.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

ALS Environmental – Simi Valley

CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

Agency	Web Site	Number
Alaska DEC	http://dec.alaska.gov/eh/lab.aspx	17-019
Arizona DHS	http://www.azdhs.gov/preparedness/state-laboratory/lab-licensure-certification/index.php#laboratory-licensure-home	AZ0694
Florida DOH (NELAP)	http://www.floridahealth.gov/licensing-and-regulation/environmental-laboratories/index.html	E871020
Louisiana DEQ (NELAP)	http://www.deq.louisiana.gov/page/la-lab-accreditation	05071
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/professionals/labCert.shtml	2018027
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	1776326
New Jersey DEP (NELAP)	http://www.nj.gov/dep/enforcement/oqa.html	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://www.oregon.gov/oha/ph/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	4068-007
Pennsylvania DEP	http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx	68-03307 (Registration)
PJLA (DoD ELAP)	http://www.pjlabs.com/search-accredited-labs	65818 (Testing)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/agency/qa/env_lab_accreditation.html	T104704413-19-10
Utah DOH (NELAP)	http://health.utah.gov/lab/lab_cert_env	CA016272019-10
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946

Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website.

Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.

ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: ALS Laboratory Group
Service Request: P2006524
Project ID: HS20110674

Date Received: 11/18/2020
Time Received: 09:30

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	RSK 175 - CO2	RSK 175 - Gases
35BWW08-201111	P2006524-001	Water	11/11/2020	07:10	X	X
35BWW08-201111-FD	P2006524-002	Water	11/11/2020	07:10	X	X
35BWW12-201111	P2006524-003	Water	11/11/2020	08:05	X	X

P0065J4

10450 Stancliff Rd, Ste 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887
www.alsglobal.com

Subcontract Chain of Custody

SAMPLING STATE: **Dept of Defense** **COC ID:** **15162**

SUBCONTRACT TO:

ALS Environmental
2655 Park Center Drive, Suite A
Simi Valley, CA 93065 **Phone:** +1 805 526 7161

CUSTOMER INFORMATION:

Company: ALS Houston Ste 210
Contact: +1 281 530 5656 shia
Address: 10450 Stancliff Rd,
Phone:
Email: RJ.Modashia@alsglobal.com
Alternate Contact:
Email:

INVOICE INFORMATION:

Company: ALS Houston
Contact: Accounts Payable
Address: 10450 Stancliff Rd, Ste 210
Phone: +1 281 530 5656
Reference: HS20110674
TSR: Sonia West

LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
ANALYSIS REQUESTED			DUE DATE

1.	**HS20110674-01**	**35BWW08-201111**	**Groundwater**	**11 Nov 2020 07:10**
	MEE + CO2. Provide DOD LV II & IV pdf separate. EDD. EQuIS 5.0 - Longhorn		Equis	30 Nov 2020
2.	**HS20110674-02**	**35BWW08-201111-FD**	**Groundwater**	**11 Nov 2020 07:10**
	MEE + CO2. Provide DOD LV II & IV pdf separate. EDD. EQuIS 5.0 - Longhorn		Equis	30 Nov 2020
3.	**HS20110674-03**	**35BWW12-201111**	**Groundwater**	**11 Nov 2020 08:05**
	MEE + CO2. Provide DOD LV II & IV pdf separate. EDD. EQuIS 5.0 - Longhorn		Equis	30 Nov 2020

Comments: Please analyze for the analysis listed above.
Send report to the emails shown above.
3 x Neat & 3 x HCL vials.
HS20110674-03 = MS/MSD

QC Level: DOD IV (DoD Data Package)

Relinquished By: _____ Date/Time: 11/16/2020 1800 - 11-17-20 0930 1° LOT

Received By: _____ Date/Time: _____

Cooler ID(s): _____ Temperature(s): _____

ALS Environmental
Sample Acceptance Check Form

Client: ALS Laboratory Group Work order: P2006524

Project: HS20110674

Sample(s) received on: 11/18/2020 Date opened: 11/18/2020 by: ADAVID

Note: This form is used for all samples received by ALS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

		Yes	No	N/A
1	Were **sample containers** properly marked with client sample ID?	☒	☐	☐
2	Did **sample containers** arrive in good condition?	☒	☐	☐
3	Were **chain-of-custody** papers used and filled out?	☒	☐	☐
4	Did **sample container labels** and/or tags agree with custody papers?	☒	☐	☐
5	Was **sample volume** received adequate for analysis?	☒	☐	☐
6	Are samples within specified holding times?	☒	☐	☐
7	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☒	☐	☐
	Cooler Temperature: ° C Blank Temperature: 1° C	Wet Ice		
8	Were **custody seals** on outside of cooler/Box/Container?	☒	☐	☐
	Location of seal(s)? Cooler lid. Sealing Lid?	☒	☐	☐
	Were signature and date included?	☒	☐	☐
	Were seals intact?	☒	☐	☐
9	Do containers have appropriate **preservation**, according to method/SOP or Client specified information?	☒	☐	☐
	Is there a client indication that the submitted samples are **pH** preserved?	☒	☐	☐
	Were **VOA vials** checked for presence/absence of air bubbles?	☒	☐	☐
	Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?	☐	☒	☐
10	**Tubes:** Are the tubes capped and intact?	☐	☐	☒
11	**Badges:** Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P2006524-001.01	40mL VOA NP				A	
P2006524-001.02	40mL VOA NP				A	
P2006524-001.03	40mL VOA NP				A	
P2006524-001.04	40ml VOA HCL		1		A	wh 11/20/20
P2006524-001.05	40ml VOA HCL				A	
P2006524-001.06	40ml VOA HCL				A	
P2006524-002.01	40mL VOA NP				A	
P2006524-002.02	40mL VOA NP				A	
P2006524-002.03	40mL VOA NP				A	
P2006524-002.04	40ml VOA HCL		1		A	wh 11/20/20
P2006524-002.05	40ml VOA HCL				A	
P2006524-002.06	40ml VOA HCL				A	
P2006524-003.01	40mL VOA NP				A	
P2006524-003.02	40mL VOA NP				A	
P2006524-003.03	40mL VOA NP				A	

Explain any discrepancies: (include lab sample ID numbers):

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS Environmental
Sample Acceptance Check Form

Client: ALS Laboratory Group Work order: P2006524

Project: HS20110674

Sample(s) received on: 11/18/2020 Date opened: 11/18/2020 by: ADAVID

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P2006524-003.04	40ml VOA HCL		1		A	wh 11/20/20
P2006524-003.05	40ml VOA HCL		1		A	wh 11/20/20
P2006524-003.06	40ml VOA HCL		1		A	wh 11/20/20
P2006524-003.07	40mL VOA NP				A	
P2006524-003.08	40mL VOA NP				A	
P2006524-003.09	40mL VOA NP				A	
P2006524-003.10	40mL VOA NP				A	
P2006524-003.11	40mL VOA NP				A	
P2006524-003.12	40mL VOA NP				A	
P2006524-003.13	40ml VOA HCL				A	
P2006524-003.14	40ml VOA HCL				A	
P2006524-003.15	40ml VOA HCL				A	
P2006524-003.16	40ml VOA HCL				A	
P2006524-003.17	40ml VOA HCL				A	
P2006524-003.18	40ml VOA HCL				A	

Explain any discrepancies: (include lab sample ID numbers):

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **35BWW08-201111**
Client Project ID: **HS20110674**

ALS Project ID: P2006524
ALS Sample ID: P2006524-001

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Wade Henton
Matrix: Water
Test Notes:

Date Collected: 11/11/20
Date Received: 11/18/20
Date Analyzed: 11/20/20
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	1.0	1.3	1.0	0.51	**U**
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **35BWW08-201111-FD**
Client Project ID: **HS20110674**

ALS Project ID: P2006524
ALS Sample ID: P2006524-002

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Wade Henton
Matrix: Water
Test Notes:

Date Collected: 11/11/20
Date Received: 11/18/20
Date Analyzed: 11/20/20
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	1.0	1.3	1.0	0.51	**U**
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **35BWW12-201111**
Client Project ID: **HS20110674**

ALS Project ID: P2006524
ALS Sample ID: P2006524-003

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Wade Henton
Matrix: Water
Test Notes:

Date Collected: 11/11/20
Date Received: 11/18/20
Date Analyzed: 11/20/20
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	1.0	1.3	1.0	0.51	**U**
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **Method Control Sample** ALS Project ID: P2006524
Client Project ID: **HS20110674** ALS Sample ID: P201120-MB

Test Code: RSK 175 Date Collected: NA
Instrument ID: HP5890A/GC10/FID Date Received: NA
Analyst: Wade Henton Date Analyzed: 11/20/20
Matrix: Water Volume(s) Analyzed: 0.10 ml(s)
Test Notes:

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	1.0	1.3	1.0	0.51	**U**
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

The Method Control Sample is laboratory water carried through the entire analytical process.
U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

MATRIX SPIKE / DUPLICATE MATRIX SPIKE SUMMARY

Client: **ALS Laboratory Group**
Client Sample ID: **35BWW12-201111**
Client Project ID: **HS20110674**

ALS Project ID: P2006524
ALS Sample ID: P2006524-003MS
P2006524-003DMS

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Wade Henton
Matrix: Water
Test Notes:

Date Collected: 11/11/20
Date Received: 11/18/20
Date Analyzed: 11/20/20
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Spike Amount MS / DMS µg/L	Sample Amount µg/L	Result MS µg/L	Result DMS µg/L	% Recovery MS	% Recovery DMS	DOD Acceptance Limits	RPD	RPD Limit	Data Qualifier
74-82-8	Methane	169	ND	120	120	**71**	**71**	73-125	0	30	**N**
74-85-1	Ethene	294	ND	245	251	**83**	**85**	72-133	2	30	
74-84-0	Ethane	317	ND	240	242	**76**	**76**	74-131	0	30	

N = The matrix spike recovery is not within control limits. See case narrative.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **ALS Laboratory Group**
Client Sample ID: **Duplicate Lab Control Sample**
Client Project ID: **HS20110674**

ALS Project ID: P2006524
ALS Sample ID: P201120-LCS
P201120-DLCS

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Wade Henton
Matrix: Water
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 11/20/20
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Spike Amount LCS / DLCS µg/L	Result$_1$ LCS µg/L	Result$_1$ DLCS µg/L	% Recovery LCS	% Recovery DLCS	DOD Acceptance Limits	RPD	RPD Limit	Data Qualifier
74-82-8	Methane	2.52	2.89	2.87	**115**	**114**	73-125	0.9	26	
74-85-1	Ethene	4.40	5.23	5.22	**119**	**119**	72-133	0	11	
74-84-0	Ethane	4.72	5.11	5.02	**108**	**106**	74-131	2	10	

$_1$ = The concentration shown includes a subtraction of the Method Control Sample value, even if the result is less than the MRL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Project ID: **HS20110674** ALS Project ID: P2006524

Carbon Dioxide

Test Code: RSK 175
Instrument ID: HP5890A/GC10/TCD
Analyst: Wade Henton
Matrix: Water
Test Notes:

Date(s) Collected: 11/11/20
Date Received: 11/18/20
Date Analyzed: 11/24/20

Client Sample ID	ALS Sample ID	Injection Volume ml(s)	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
35BWW08-201111	P2006524-001	0.10	**590,000**	1,000	860	370	**E**
35BWW08-201111-FD	P2006524-002	0.10	**470,000**	1,000	860	370	
35BWW12-201111	P2006524-003	0.050	**600,000**	2,000	1,700	740	
Method Control Sample	P201124-MB	0.10	860	1,000	860	370	**U**

The Method Control Sample is laboratory water carried through the entire analytical process.
U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
E = Estimated; concentration exceeded calibration range.

ALS ENVIRONMENTAL

MATRIX SPIKE / DUPLICATE MATRIX SPIKE SUMMARY

Client: **ALS Laboratory Group**
Client Sample ID: **35BWW12-201111**
Client Project ID: **HS20110674**

ALS Project ID: P2006524
ALS Sample ID: P2006524-003MS
P2006524-003DMS

Test Code: RSK 175
Instrument ID: HP5890A/GC10/TCD
Analyst: Wade Henton
Matrix: Water
Test Notes:

Date Collected: #######
Date Received: #######
Date Analyzed: #######
Volume(s) Analyzed: 0.050 ml(s)

CAS #	Compound	Spike Amount MS / DMS ug/L	Sample Amount ug/L	Result MS ug/L	Result DMS ug/L	% Recovery MS	% Recovery DMS	DOD Acceptance Limits	RPD	RPD Limit	Data Qualifier
124-38-9	Carbon Dioxide	45,800	595,000	653,000	498,000	**127**	**0**	80-122	200	30	**N, R**

N = The matrix spike sample recovery is not within control limits. See case narrative.
R = Duplicate precision not met.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **ALS Laboratory Group**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P2006524
Client Project ID: **HS20110674** ALS Sample ID: P201124-DLCS

Test Code: RSK 175 Date Collected: NA
Instrument ID: HP5890A/GC10/TCD Date Received: NA
Analyst: Wade Henton Date Analyzed: 11/24/20
Matrix: Water Volume(s) Analyzed: NA ml(s)
Test Notes:

CAS #	Compound	Spike Amount LCS / DLCS ug/L	Result$_1$ LCS ug/L	Result$_1$ DLCS ug/L	% Recovery LCS	% Recovery DLCS	DOD Acceptance Limits	RPD	RPD Limit	Data Qualifier
124-38-9	Carbon Dioxide	22,900	19,900	18,700	**87**	**82**	80-122	6	12	

$_1$ = The concentration shown includes a subtraction of the Method Control Sample value, even if the result is less than the MRL.

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Houston, TX 77099
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June 30, 2021

Vicki Graves
Aptim Environmental & Infrastucture, Inc.
10333 Richmond Ave
Ste 1030
Houston, TX 77042

Work Order: **HS21050689**

Laboratory Results for: **LHAAP 37 May 2021**

Dear Vicki Graves ,

ALS Environmental received 3 sample(s) on May 14, 2021 for the analysis presented in the following report.

This is a REVISED REPORT. Please see the Case Narrative for discussion concerning this revision.

Regards,

Generated By: JUMOKE.LAWAL
Ragen Giga
Project Manager

ALS Houston, US Date: 30-Jun-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 37 May 2021
Work Order: HS21050689

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS21050689-01	35BWW04_210513	Groundwater		13-May-2021 11:50	14-May-2021 09:25	☐
HS21050689-02	35BWW20_210513	Groundwater		13-May-2021 12:40	14-May-2021 09:25	☐
HS21050689-03	Trip Blank_210513	Groundwater	CG 121520 -1082	13-May-2020 00:00	14-May-2021 09:25	☐

Revision:1

ALS Houston, US Date: 30-Jun-21

Client: Aptim Environmental & Infrastucture, Inc. **CASE NARRATIVE**
Project: LHAAP 37 May 2021
Work Order: HS21050689

Work Order Comments

- Report was revised June 30, 2021 per client request. Trip Blank was received but not analyzed due to lab error.
- The analysis for Methane, Methene, Ethane and CO2 by RSK175 was subcontracted to ALS Simi Valley, CA. Final report attached.

GCMS Volatiles by Method SW8260

Batch ID: R384020

Sample ID: VLCSW-210518

- 1,2,3-Trichlorobenzene and Naphthalene exceeded QC limits for LCS. Samples are ND for these compounds.

WetChemistry by Method SM5310B

Batch ID: R383987

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method SW9056

Batch ID: R383778

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

ALS Houston, US Date: 30-Jun-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP 37 May 2021 WorkOrder:HS21050689
Sample ID: 35BWW04_210513 Lab ID:HS21050689-01
Collection Date: 13-May-2021 11:50 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	18-May-2021 19:34
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	18-May-2021 19:34
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	18-May-2021 19:34
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	ug/L	1	18-May-2021 19:34
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	18-May-2021 19:34
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	18-May-2021 19:34
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	18-May-2021 19:34
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	18-May-2021 19:34
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	18-May-2021 19:34
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	18-May-2021 19:34
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	18-May-2021 19:34
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	18-May-2021 19:34
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	18-May-2021 19:34
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	18-May-2021 19:34
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	18-May-2021 19:34
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	18-May-2021 19:34
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	18-May-2021 19:34
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	18-May-2021 19:34
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	18-May-2021 19:34
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	18-May-2021 19:34
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	18-May-2021 19:34
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	18-May-2021 19:34
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	18-May-2021 19:34
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	18-May-2021 19:34
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	18-May-2021 19:34
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	18-May-2021 19:34
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	18-May-2021 19:34
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	18-May-2021 19:34
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	18-May-2021 19:34
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	18-May-2021 19:34
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	18-May-2021 19:34
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	18-May-2021 19:34
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	18-May-2021 19:34
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	18-May-2021 19:34
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	18-May-2021 19:34
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	18-May-2021 19:34
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	18-May-2021 19:34
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	18-May-2021 19:34
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	18-May-2021 19:34

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

ALS Houston, US Date: 30-Jun-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 37 May 2021
Sample ID: 35BWW04_210513
Collection Date: 13-May-2021 11:50

ANALYTICAL REPORT
WorkOrder:HS21050689
Lab ID:HS21050689-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	18-May-2021 19:34
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	18-May-2021 19:34
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	18-May-2021 19:34
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	18-May-2021 19:34
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	18-May-2021 19:34
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	18-May-2021 19:34
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	18-May-2021 19:34
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	18-May-2021 19:34
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	18-May-2021 19:34
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	18-May-2021 19:34
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	18-May-2021 19:34
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	18-May-2021 19:34
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	18-May-2021 19:34
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	18-May-2021 19:34
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	18-May-2021 19:34
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	18-May-2021 19:34
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	18-May-2021 19:34
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	18-May-2021 19:34
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	18-May-2021 19:34
Tetrachloroethene	**6.8**		**0.30**	**1.0**	**1.0**	**ug/L**	1	18-May-2021 19:34
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	18-May-2021 19:34
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	18-May-2021 19:34
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	18-May-2021 19:34
Trichloroethene	**0.61**	J	**0.20**	**0.50**	**1.0**	**ug/L**	1	18-May-2021 19:34
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	18-May-2021 19:34
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	18-May-2021 19:34
Surr: 1,2-Dichloroethane-d4	*96.0*			**0**	*81-118*	*%REC*	*1*	*18-May-2021 19:34*
Surr: 4-Bromofluorobenzene	*94.1*			**0**	*85-114*	*%REC*	*1*	*18-May-2021 19:34*
Surr: Dibromofluoromethane	*89.9*			**0**	*80-119*	*%REC*	*1*	*18-May-2021 19:34*
Surr: Toluene-d8	*111*			**0**	*89-112*	*%REC*	*1*	*18-May-2021 19:34*
TOTAL ORGANIC CARBON - SM5310B		**Method:SM5310B**						Analyst: JAC
Organic Carbon, Total	**0.960**	J	**0.500**	**0.500**	**1.00**	**mg/L**	1	20-May-2021 00:32
ANIONS BY SW9056A		**Method:SW9056**						Analyst: YP
Chloride	**4.46**		**0.200**	**0.500**	**0.500**	**mg/L**	1	14-May-2021 14:31
Nitrogen, Nitrate (As N)	**0.135**		**0.0300**	**0.100**	**0.100**	**mg/L**	1	14-May-2021 14:31
Sulfate	**28.6**		**0.200**	**0.500**	**0.500**	**mg/L**	1	14-May-2021 14:31
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUBCA
Subcontract Analysis	See Attached		0	0		NA	1	28-May-2021 09:11

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

ALS Houston, US Date: 30-Jun-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP 37 May 2021 WorkOrder:HS21050689
Sample ID: 35BWW20_210513 Lab ID:HS21050689-02
Collection Date: 13-May-2021 12:40 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	18-May-2021 19:55
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	18-May-2021 19:55
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	18-May-2021 19:55
1,1,2-Trichlor-1,2,2-trifluoroethane	**1.1**		**0.50**	**1.0**	**1.0**	**ug/L**	1	18-May-2021 19:55
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	18-May-2021 19:55
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	18-May-2021 19:55
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	18-May-2021 19:55
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	18-May-2021 19:55
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	18-May-2021 19:55
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	18-May-2021 19:55
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	18-May-2021 19:55
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	18-May-2021 19:55
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	18-May-2021 19:55
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	18-May-2021 19:55
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	18-May-2021 19:55
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	18-May-2021 19:55
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	18-May-2021 19:55
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	18-May-2021 19:55
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	18-May-2021 19:55
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	18-May-2021 19:55
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	18-May-2021 19:55
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	18-May-2021 19:55
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	18-May-2021 19:55
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	18-May-2021 19:55
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	18-May-2021 19:55
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	18-May-2021 19:55
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	18-May-2021 19:55
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	18-May-2021 19:55
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	18-May-2021 19:55
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	18-May-2021 19:55
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	18-May-2021 19:55
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	18-May-2021 19:55
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	18-May-2021 19:55
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	18-May-2021 19:55
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	18-May-2021 19:55
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	18-May-2021 19:55
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	18-May-2021 19:55
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	18-May-2021 19:55

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

ALS Houston, US Date: 30-Jun-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 37 May 2021
Sample ID: 35BWW20_210513
Collection Date: 13-May-2021 12:40

ANALYTICAL REPORT
WorkOrder:HS21050689
Lab ID:HS21050689-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	18-May-2021 19:55
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	18-May-2021 19:55
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	18-May-2021 19:55
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	18-May-2021 19:55
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	18-May-2021 19:55
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	18-May-2021 19:55
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	18-May-2021 19:55
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	18-May-2021 19:55
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	18-May-2021 19:55
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	18-May-2021 19:55
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	18-May-2021 19:55
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	18-May-2021 19:55
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	18-May-2021 19:55
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	18-May-2021 19:55
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	18-May-2021 19:55
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	18-May-2021 19:55
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	18-May-2021 19:55
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	18-May-2021 19:55
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	18-May-2021 19:55
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	18-May-2021 19:55
Tetrachloroethene	**6.1**		**0.30**	**1.0**	**1.0**	**ug/L**	1	18-May-2021 19:55
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	18-May-2021 19:55
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	18-May-2021 19:55
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	18-May-2021 19:55
Trichloroethene	**1.8**		**0.20**	**0.50**	**1.0**	**ug/L**	1	18-May-2021 19:55
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	18-May-2021 19:55
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	18-May-2021 19:55
Surr: 1,2-Dichloroethane-d4	*98.4*			**0**	*81-118*	*%REC*	*1*	*18-May-2021 19:55*
Surr: 4-Bromofluorobenzene	*93.7*			**0**	*85-114*	*%REC*	*1*	*18-May-2021 19:55*
Surr: Dibromofluoromethane	*93.6*			**0**	*80-119*	*%REC*	*1*	*18-May-2021 19:55*
Surr: Toluene-d8	*110*			**0**	*89-112*	*%REC*	*1*	*18-May-2021 19:55*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Revision: 1

ALS Houston, US Date: 30-Jun-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 37 May 2021
WorkOrder: HS21050689

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R383778 (0)	**Test Name :** ANIONS BY SW9056A				**Matrix:** Groundwater	
HS21050689-01	35BWW04_210513	13 May 2021 11:50			14 May 2021 14:31	1
Batch ID: R383987 (0)	**Test Name :** TOTAL ORGANIC CARBON - SM5310B				**Matrix:** Groundwater	
HS21050689-01	35BWW04_210513	13 May 2021 11:50			20 May 2021 00:32	1
Batch ID: R384020 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Groundwater	
HS21050689-01	35BWW04_210513	13 May 2021 11:50			18 May 2021 19:34	1
HS21050689-02	35BWW20_210513	13 May 2021 12:40			18 May 2021 19:55	1
Batch ID: R384568 (0)	**Test Name :** SUBCONTRACT ANALYSIS - RSK				**Matrix:** Groundwater	
HS21050689-01	35BWW04_210513	13 May 2021 11:50			28 May 2021 09:11	1

Revision: 1

ALS Houston, US Date: 30-Jun-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 37 May 2021
WorkOrder: HS21050689

QC BATCH REPORT

Batch ID: R384020 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-210518** Units: **ug/L** Analysis Date: **18-May-2021 17:49**
Client ID: Run ID: **VOA6_384020** SeqNo: **6101560** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1.0	1.0								U
1,1,1-Trichloroethane	0.50	1.0								U
1,1,2,2-Tetrachloroethane	1.0	1.0								U
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	1.0								U
1,1,2-Trichloroethane	1.0	1.0								U
1,1-Dichloroethane	0.50	1.0								U
1,1-Dichloroethene	0.50	1.0								U
1,1-Dichloropropene	1.0	1.0								U
1,2,3-Trichlorobenzene	1.0	1.0								U
1,2,3-Trichloropropane	1.0	1.0								U
1,2,4-Trichlorobenzene	1.0	1.0								U
1,2,4-Trimethylbenzene	1.0	1.0								U
1,2-Dibromo-3-chloropropane	0.50	1.0								U
1,2-Dibromoethane	0.50	1.0								U
1,2-Dichlorobenzene	1.0	1.0								U
1,2-Dichloroethane	0.50	1.0								U
1,2-Dichloropropane	1.0	1.0								U
1,3,5-Trimethylbenzene	1.0	1.0								U
1,3-Dichlorobenzene	1.0	1.0								U
1,3-Dichloropropane	1.0	1.0								U
1,4-Dichlorobenzene	1.0	1.0								U
2,2-Dichloropropane	0.50	1.0								U
2-Butanone	1.0	2.0								U
2-Chlorotoluene	1.0	1.0								U
2-Hexanone	2.0	2.0								U
4-Chlorotoluene	1.0	1.0								U
4-Isopropyltoluene	1.0	1.0								U
4-Methyl-2-pentanone	2.0	2.0								U
Acetone	2.0	2.0								U
Benzene	0.50	1.0								U
Bromobenzene	1.0	1.0								U
Bromochloromethane	0.50	1.0								U
Bromodichloromethane	0.50	1.0								U
Bromoform	1.0	1.0								U

Revision: 1

ALS Houston, US Date: 30-Jun-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 37 May 2021
WorkOrder: HS21050689

QC BATCH REPORT

Batch ID: R384020 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-210518** Units: **ug/L** Analysis Date: **18-May-2021 17:49**
Client ID: Run ID: **VOA6_384020** SeqNo: **6101560** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromomethane	1.0	1.0								U
Carbon disulfide	2.0	2.0								U
Carbon tetrachloride	1.0	1.0								U
Chlorobenzene	1.0	1.0								U
Chloroethane	1.0	1.0								U
Chloroform	0.50	1.0								U
Chloromethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
cis-1,3-Dichloropropene	0.50	1.0								U
Dibromochloromethane	1.0	1.0								U
Dibromomethane	0.50	1.0								U
Dichlorodifluoromethane	1.0	1.0								U
Ethylbenzene	1.0	1.0								U
Hexachlorobutadiene	1.0	1.0								U
Isopropylbenzene	1.0	1.0								U
m,p-Xylene	1.0	2.0								U
Methylene chloride	2.0	2.0								U
Naphthalene	1.0	1.0								U
n-Butylbenzene	1.0	1.0								U
n-Propylbenzene	1.0	1.0								U
o-Xylene	1.0	1.0								U
sec-Butylbenzene	1.0	1.0								U
Styrene	1.0	1.0								U
tert-Butylbenzene	1.0	1.0								U
Tetrachloroethene	1.0	1.0								U
Toluene	0.50	1.0								U
trans-1,2-Dichloroethene	0.50	1.0								U
trans-1,3-Dichloropropene	0.50	1.0								U
Trichloroethene	0.50	1.0								U
Trichlorofluoromethane	1.0	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*48.59*	*1.0*	*50*	*0*	*97.2*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*46.47*	*1.0*	*50*	*0*	*92.9*	*85 - 114*				
Surr: Dibromofluoromethane	*46.52*	*1.0*	*50*	*0*	*93.0*	*80 - 119*				

Revision: 1

ALS Houston, US Date: 30-Jun-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 37 May 2021
WorkOrder: HS21050689

QC BATCH REPORT

Batch ID: R384020 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-210518** Units: **ug/L** Analysis Date: **18-May-2021 17:49**
Client ID: Run ID: **VOA6_384020** SeqNo: **6101560** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*53.79*	*1.0*	*50*	*0*	*108*	*89 - 112*				

Revision: 1

ALS Houston, US Date: 30-Jun-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 37 May 2021
WorkOrder: HS21050689

QC BATCH REPORT

Batch ID: R384020 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-210518** Units: **ug/L** Analysis Date: **18-May-2021 16:46**
Client ID: Run ID: **VOA6_384020** SeqNo: **6101559** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	19.34	1.0	20	0	96.7	78 - 124				
1,1,1-Trichloroethane	20.25	1.0	20	0	101	74 - 131				
1,1,2,2-Tetrachloroethane	21.66	1.0	20	0	108	71 - 121				
1,1,2-Trichlor-1,2,2-trifluoroethane	18.42	1.0	20	0	92.1	70 - 136				
1,1,2-Trichloroethane	19.74	1.0	20	0	98.7	80 - 119				
1,1-Dichloroethane	20.44	1.0	20	0	102	77 - 125				
1,1-Dichloroethene	19.66	1.0	20	0	98.3	71 - 131				
1,1-Dichloropropene	20.14	1.0	20	0	101	78 - 125				
1,2,3-Trichlorobenzene	26.52	1.0	20	0	133	69 - 129				S
1,2,3-Trichloropropane	21.33	1.0	20	0	107	73 - 122				
1,2,4-Trichlorobenzene	25.16	1.0	20	0	126	69 - 130				
1,2,4-Trimethylbenzene	19.66	1.0	20	0	98.3	76 - 124				
1,2-Dibromo-3-chloropropane	23.25	1.0	20	0	116	62 - 128				
1,2-Dibromoethane	21.06	1.0	20	0	105	77 - 121				
1,2-Dichlorobenzene	19.08	1.0	20	0	95.4	80 - 119				
1,2-Dichloroethane	20.91	1.0	20	0	105	73 - 128				
1,2-Dichloropropane	20.69	1.0	20	0	103	78 - 122				
1,3,5-Trimethylbenzene	19.48	1.0	20	0	97.4	75 - 124				
1,3-Dichlorobenzene	20.06	1.0	20	0	100	80 - 119				
1,3-Dichloropropane	20.32	1.0	20	0	102	80 - 119				
1,4-Dichlorobenzene	20.55	1.0	20	0	103	79 - 118				
2,2-Dichloropropane	20.86	1.0	20	0	104	60 - 139				
2-Butanone	42.72	2.0	40	0	107	56 - 143				
2-Chlorotoluene	19	1.0	20	0	95.0	79 - 122				
2-Hexanone	42.72	2.0	40	0	107	57 - 139				
4-Chlorotoluene	19.7	1.0	20	0	98.5	78 - 122				
4-Isopropyltoluene	19.43	1.0	20	0	97.2	77 - 127				
4-Methyl-2-pentanone	43.8	2.0	40	0	109	67 - 130				
Acetone	48.21	2.0	40	0	121	39 - 160				
Benzene	21.09	1.0	20	0	105	79 - 120				
Bromobenzene	19.59	1.0	20	0	98.0	80 - 120				
Bromochloromethane	19.43	1.0	20	0	97.2	78 - 123				
Bromodichloromethane	20.6	1.0	20	0	103	79 - 125				
Bromoform	19.91	1.0	20	0	99.6	66 - 130				

Revision: 1

ALS Houston, US Date: 30-Jun-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 37 May 2021
WorkOrder: HS21050689

QC BATCH REPORT

Batch ID: R384020 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

LCS Sample ID: **VLCSW-210518** Units: **ug/L** Analysis Date: **18-May-2021 16:46**
Client ID: Run ID: **VOA6_384020** SeqNo: **6101559** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromomethane	25.63	1.0	20	0	128	53 - 141				
Carbon disulfide	43.26	2.0	40	0	108	64 - 133				
Carbon tetrachloride	19.19	1.0	20	0	96.0	72 - 136				
Chlorobenzene	19.9	1.0	20	0	99.5	82 - 118				
Chloroethane	19.49	1.0	20	0	97.4	60 - 138				
Chloroform	19.98	1.0	20	0	99.9	79 - 124				
Chloromethane	22.72	1.0	20	0	114	50 - 139				
cis-1,2-Dichloroethene	19.75	1.0	20	0	98.8	78 - 123				
cis-1,3-Dichloropropene	20.76	1.0	20	0	104	75 - 124				
Dibromochloromethane	20.89	1.0	20	0	104	74 - 126				
Dibromomethane	20.85	1.0	20	0	104	79 - 123				
Dichlorodifluoromethane	21.39	1.0	20	0	107	32 - 152				
Ethylbenzene	20.05	1.0	20	0	100	79 - 121				
Hexachlorobutadiene	21.57	1.0	20	0	108	66 - 134				
Isopropylbenzene	18.88	1.0	20	0	94.4	72 - 131				
m,p-Xylene	39.82	2.0	40	0	99.5	80 - 121				
Methylene chloride	21.19	2.0	20	0	106	74 - 124				
Naphthalene	25.77	1.0	20	0	129	61 - 128				S
n-Butylbenzene	18.8	1.0	20	0	94.0	75 - 128				
n-Propylbenzene	19.8	1.0	20	0	99.0	76 - 126				
o-Xylene	19.66	1.0	20	0	98.3	78 - 122				
sec-Butylbenzene	18.12	1.0	20	0	90.6	77 - 126				
Styrene	19.13	1.0	20	0	95.6	78 - 123				
tert-Butylbenzene	18.64	1.0	20	0	93.2	78 - 124				
Tetrachloroethene	19.86	1.0	20	0	99.3	74 - 129				
Toluene	20.55	1.0	20	0	103	80 - 121				
trans-1,2-Dichloroethene	20.88	1.0	20	0	104	75 - 124				
trans-1,3-Dichloropropene	21.09	1.0	20	0	105	73 - 127				
Trichloroethene	20.8	1.0	20	0	104	79 - 123				
Trichlorofluoromethane	19.33	1.0	20	0	96.6	65 - 141				
Vinyl chloride	19.53	1.0	20	0	97.7	58 - 137				
Surr: 1,2-Dichloroethane-d4	*54.04*	*1.0*	*50*	*0*	*108*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*49.64*	*1.0*	*50*	*0*	*99.3*	*85 - 114*				
Surr: Dibromofluoromethane	*49.37*	*1.0*	*50*	*0*	*98.7*	*80 - 119*				

Revision: 1

ALS Houston, US Date: 30-Jun-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 37 May 2021
WorkOrder: HS21050689

QC BATCH REPORT

Batch ID: R384020 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-210518** Units: **ug/L** Analysis Date: **18-May-2021 16:46**
Client ID: Run ID: **VOA6_384020** SeqNo: **6101559** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*49.76*	*1.0*	*50*	*0*	*99.5*	*89 - 112*				

Revision: 1

ALS Houston, US Date: 30-Jun-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 37 May 2021
WorkOrder: HS21050689

QC BATCH REPORT

Batch ID: R384020 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS21050689-01MS** Units: **ug/L** Analysis Date: **18-May-2021 20:58**
Client ID: **35BWW04_210513** Run ID: **VOA6_384020** SeqNo: **6101565** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	18.32	1.0	20	0	91.6	78 - 124				
1,1,1-Trichloroethane	19.56	1.0	20	0	97.8	74 - 131				
1,1,2,2-Tetrachloroethane	17.6	1.0	20	0	88.0	71 - 121				
1,1,2-Trichlor-1,2,2-trifluoroethane	20.53	1.0	20	0	103	70 - 136				
1,1,2-Trichloroethane	18.33	1.0	20	0	91.7	80 - 119				
1,1-Dichloroethane	18.29	1.0	20	0	91.5	77 - 125				
1,1-Dichloroethene	18.18	1.0	20	0	90.9	71 - 131				
1,1-Dichloropropene	21.18	1.0	20	0	106	78 - 125				
1,2,3-Trichlorobenzene	15.06	1.0	20	0	75.3	69 - 129				
1,2,3-Trichloropropane	16.96	1.0	20	0	84.8	73 - 122				
1,2,4-Trichlorobenzene	17.25	1.0	20	0	86.2	69 - 130				
1,2,4-Trimethylbenzene	19.58	1.0	20	0	97.9	76 - 124				
1,2-Dibromo-3-chloropropane	16.58	1.0	20	0	82.9	62 - 128				
1,2-Dibromoethane	18.36	1.0	20	0	91.8	77 - 121				
1,2-Dichlorobenzene	17.49	1.0	20	0	87.5	80 - 119				
1,2-Dichloroethane	19.38	1.0	20	0	96.9	73 - 128				
1,2-Dichloropropane	19.21	1.0	20	0	96.1	78 - 122				
1,3,5-Trimethylbenzene	19.81	1.0	20	0	99.1	75 - 124				
1,3-Dichlorobenzene	18.77	1.0	20	0	93.9	80 - 119				
1,3-Dichloropropane	18.16	1.0	20	0	90.8	80 - 119				
1,4-Dichlorobenzene	19.05	1.0	20	0	95.2	79 - 118				
2,2-Dichloropropane	18.54	1.0	20	0	92.7	60 - 139				
2-Butanone	31.17	2.0	40	0	77.9	56 - 143				
2-Chlorotoluene	18.98	1.0	20	0	94.9	79 - 122				
2-Hexanone	32.93	2.0	40	0	82.3	57 - 139				
4-Chlorotoluene	19.26	1.0	20	0	96.3	78 - 122				
4-Isopropyltoluene	20.48	1.0	20	0	102	77 - 127				
4-Methyl-2-pentanone	33.44	2.0	40	0	83.6	67 - 130				
Acetone	30.62	2.0	40	0	76.5	39 - 160				
Benzene	19.56	1.0	20	0	97.8	79 - 120				
Bromobenzene	18.8	1.0	20	0	94.0	80 - 120				
Bromochloromethane	16.83	1.0	20	0	84.1	78 - 123				
Bromodichloromethane	18.71	1.0	20	0	93.5	79 - 125				
Bromoform	16.82	1.0	20	0	84.1	66 - 130				

Revision: 1

ALS Houston, US Date: 30-Jun-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 37 May 2021
WorkOrder: HS21050689

QC BATCH REPORT

Batch ID: R384020 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS21050689-01MS** Units: **ug/L** Analysis Date: **18-May-2021 20:58**
Client ID: **35BWW04_210513** Run ID: **VOA6_384020** SeqNo: **6101565** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromomethane	19.48	1.0	20	0	97.4	53 - 141				
Carbon disulfide	37.52	2.0	40	0	93.8	64 - 133				
Carbon tetrachloride	19.96	1.0	20	0	99.8	72 - 136				
Chlorobenzene	18.62	1.0	20	0	93.1	82 - 118				
Chloroethane	16.02	1.0	20	0	80.1	60 - 138				
Chloroform	17.63	1.0	20	0	88.2	79 - 124				
Chloromethane	18.36	1.0	20	0	91.8	50 - 139				
cis-1,2-Dichloroethene	17.61	1.0	20	0	88.1	78 - 123				
cis-1,3-Dichloropropene	18.99	1.0	20	0	95.0	75 - 124				
Dibromochloromethane	17.95	1.0	20	0	89.8	74 - 126				
Dibromomethane	18.42	1.0	20	0	92.1	79 - 123				
Dichlorodifluoromethane	18.28	1.0	20	0	91.4	32 - 152				
Ethylbenzene	20.51	1.0	20	0	103	79 - 121				
Hexachlorobutadiene	20.7	1.0	20	0	104	66 - 134				
Isopropylbenzene	20.51	1.0	20	0	103	72 - 131				
m,p-Xylene	39.81	2.0	40	0	99.5	80 - 121				
Methylene chloride	18.25	2.0	20	0	91.3	74 - 124				
Naphthalene	14.48	1.0	20	0	72.4	61 - 128				
n-Butylbenzene	20.43	1.0	20	0	102	75 - 128				
n-Propylbenzene	20.79	1.0	20	0	104	76 - 126				
o-Xylene	19.16	1.0	20	0	95.8	78 - 122				
sec-Butylbenzene	21.02	1.0	20	0	105	77 - 126				
Styrene	18.3	1.0	20	0	91.5	78 - 123				
tert-Butylbenzene	20.38	1.0	20	0	102	78 - 124				
Tetrachloroethene	27.2	1.0	20	6.806	102	74 - 129				
Toluene	19.64	1.0	20	0	98.2	80 - 121				
trans-1,2-Dichloroethene	18.95	1.0	20	0	94.7	75 - 124				
trans-1,3-Dichloropropene	18.59	1.0	20	0	93.0	73 - 127				
Trichloroethene	20.87	1.0	20	0.6087	101	79 - 123				
Trichlorofluoromethane	19.79	1.0	20	0	99.0	65 - 141				
Vinyl chloride	18.11	1.0	20	0	90.6	58 - 137				
Surr: 1,2-Dichloroethane-d4	*50.51*	*1.0*	*50*	*0*	*101*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*49.16*	*1.0*	*50*	*0*	*98.3*	*85 - 114*				
Surr: Dibromofluoromethane	*47.28*	*1.0*	*50*	*0*	*94.6*	*80 - 119*				

Revision: 1

ALS Houston, US Date: 30-Jun-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 37 May 2021
WorkOrder: HS21050689

QC BATCH REPORT

Batch ID: R384020 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS21050689-01MS** Units: **ug/L** Analysis Date: **18-May-2021 20:58**
Client ID: **35BWW04_210513** Run ID: **VOA6_384020** SeqNo: **6101565** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*52.95*	*1.0*	*50*	*0*	*106*	*89 - 112*				

Revision: 1

ALS Houston, US Date: 30-Jun-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 37 May 2021
WorkOrder: HS21050689

QC BATCH REPORT

Batch ID: R384020 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS21050689-01MSD** Units: **ug/L** Analysis Date: **18-May-2021 21:19**
Client ID: **35BWW04_210513** Run ID: **VOA6_384020** SeqNo: **6101566** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	17.49	1.0	20	0	87.4	78 - 124	18.32	4.63	20	
1,1,1-Trichloroethane	18.77	1.0	20	0	93.9	74 - 131	19.56	4.13	20	
1,1,2,2-Tetrachloroethane	18.67	1.0	20	0	93.3	71 - 121	17.6	5.9	20	
1,1,2-Trichlor-1,2,2-trifluoroethane	19.86	1.0	20	0	99.3	70 - 136	20.53	3.29	20	
1,1,2-Trichloroethane	17.48	1.0	20	0	87.4	80 - 119	18.33	4.74	20	
1,1-Dichloroethane	17.71	1.0	20	0	88.6	77 - 125	18.29	3.22	20	
1,1-Dichloroethene	17.44	1.0	20	0	87.2	71 - 131	18.18	4.17	20	
1,1-Dichloropropene	19.65	1.0	20	0	98.3	78 - 125	21.18	7.48	20	
1,2,3-Trichlorobenzene	18.19	1.0	20	0	90.9	69 - 129	15.06	18.8	20	
1,2,3-Trichloropropane	17.6	1.0	20	0	88.0	73 - 122	16.96	3.75	20	
1,2,4-Trichlorobenzene	18.65	1.0	20	0	93.2	69 - 130	17.25	7.8	20	
1,2,4-Trimethylbenzene	19.54	1.0	20	0	97.7	76 - 124	19.58	0.203	20	
1,2-Dibromo-3-chloropropane	18.46	1.0	20	0	92.3	62 - 128	16.58	10.8	20	
1,2-Dibromoethane	18.15	1.0	20	0	90.8	77 - 121	18.36	1.15	20	
1,2-Dichlorobenzene	18.34	1.0	20	0	91.7	80 - 119	17.49	4.73	20	
1,2-Dichloroethane	19.12	1.0	20	0	95.6	73 - 128	19.38	1.35	20	
1,2-Dichloropropane	18.14	1.0	20	0	90.7	78 - 122	19.21	5.74	20	
1,3,5-Trimethylbenzene	20.16	1.0	20	0	101	75 - 124	19.81	1.75	20	
1,3-Dichlorobenzene	18.65	1.0	20	0	93.2	80 - 119	18.77	0.662	20	
1,3-Dichloropropane	17.9	1.0	20	0	89.5	80 - 119	18.16	1.42	20	
1,4-Dichlorobenzene	19.39	1.0	20	0	96.9	79 - 118	19.05	1.77	20	
2,2-Dichloropropane	17.42	1.0	20	0	87.1	60 - 139	18.54	6.22	20	
2-Butanone	30.36	2.0	40	0	75.9	56 - 143	31.17	2.62	20	
2-Chlorotoluene	18.95	1.0	20	0	94.8	79 - 122	18.98	0.174	20	
2-Hexanone	33.46	2.0	40	0	83.7	57 - 139	32.93	1.61	20	
4-Chlorotoluene	19.8	1.0	20	0	99.0	78 - 122	19.26	2.77	20	
4-Isopropyltoluene	20.56	1.0	20	0	103	77 - 127	20.48	0.416	20	
4-Methyl-2-pentanone	35.46	2.0	40	0	88.7	67 - 130	33.44	5.86	20	
Acetone	30.51	2.0	40	0	76.3	39 - 160	30.62	0.348	20	
Benzene	18.42	1.0	20	0	92.1	79 - 120	19.56	6.02	20	
Bromobenzene	18.93	1.0	20	0	94.6	80 - 120	18.8	0.666	20	
Bromochloromethane	17.29	1.0	20	0	86.4	78 - 123	16.83	2.69	20	
Bromodichloromethane	18.56	1.0	20	0	92.8	79 - 125	18.71	0.788	20	
Bromoform	17.69	1.0	20	0	88.5	66 - 130	16.82	5.06	20	

Revision: 1

ALS Houston, US Date: 30-Jun-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 37 May 2021
WorkOrder: HS21050689

QC BATCH REPORT

Batch ID: R384020 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS21050689-01MSD** Units: **ug/L** Analysis Date: **18-May-2021 21:19**
Client ID: **35BWW04_210513** Run ID: **VOA6_384020** SeqNo: **6101566** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Bromomethane	19.31	1.0	20	0	96.6	53 - 141	19.48	0.865	20	
Carbon disulfide	37	2.0	40	0	92.5	64 - 133	37.52	1.38	20	
Carbon tetrachloride	19.45	1.0	20	0	97.2	72 - 136	19.96	2.61	20	
Chlorobenzene	18.63	1.0	20	0	93.2	82 - 118	18.62	0.0602	20	
Chloroethane	17.32	1.0	20	0	86.6	60 - 138	16.02	7.79	20	
Chloroform	17.51	1.0	20	0	87.5	79 - 124	17.63	0.708	20	
Chloromethane	18.71	1.0	20	0	93.5	50 - 139	18.36	1.87	20	
cis-1,2-Dichloroethene	17.66	1.0	20	0	88.3	78 - 123	17.61	0.303	20	
cis-1,3-Dichloropropene	18.47	1.0	20	0	92.4	75 - 124	18.99	2.79	20	
Dibromochloromethane	17.96	1.0	20	0	89.8	74 - 126	17.95	0.0508	20	
Dibromomethane	18.26	1.0	20	0	91.3	79 - 123	18.42	0.832	20	
Dichlorodifluoromethane	17.95	1.0	20	0	89.8	32 - 152	18.28	1.8	20	
Ethylbenzene	19.44	1.0	20	0	97.2	79 - 121	20.51	5.35	20	
Hexachlorobutadiene	21.72	1.0	20	0	109	66 - 134	20.7	4.77	20	
Isopropylbenzene	20.18	1.0	20	0	101	72 - 131	20.51	1.64	20	
m,p-Xylene	38.96	2.0	40	0	97.4	80 - 121	39.81	2.16	20	
Methylene chloride	17.62	2.0	20	0	88.1	74 - 124	18.25	3.5	20	
Naphthalene	17.06	1.0	20	0	85.3	61 - 128	14.48	16.3	20	
n-Butylbenzene	20.6	1.0	20	0	103	75 - 128	20.43	0.812	20	
n-Propylbenzene	20.86	1.0	20	0	104	76 - 126	20.79	0.347	20	
o-Xylene	18.57	1.0	20	0	92.8	78 - 122	19.16	3.14	20	
sec-Butylbenzene	20.85	1.0	20	0	104	77 - 126	21.02	0.841	20	
Styrene	18.05	1.0	20	0	90.2	78 - 123	18.3	1.38	20	
tert-Butylbenzene	20.78	1.0	20	0	104	78 - 124	20.38	1.94	20	
Tetrachloroethene	26.76	1.0	20	6.806	99.8	74 - 129	27.2	1.64	20	
Toluene	19.33	1.0	20	0	96.7	80 - 121	19.64	1.57	20	
trans-1,2-Dichloroethene	17.96	1.0	20	0	89.8	75 - 124	18.95	5.33	20	
trans-1,3-Dichloropropene	17.94	1.0	20	0	89.7	73 - 127	18.59	3.59	20	
Trichloroethene	19.98	1.0	20	0.6087	96.9	79 - 123	20.87	4.32	20	
Trichlorofluoromethane	18.95	1.0	20	0	94.7	65 - 141	19.79	4.36	20	
Vinyl chloride	17.18	1.0	20	0	85.9	58 - 137	18.11	5.26	20	
Surr: 1,2-Dichloroethane-d4	*49.29*	*1.0*	*50*	*0*	*98.6*	*81 - 118*	*50.51*	*2.44*	*20*	
Surr: 4-Bromofluorobenzene	*50.06*	*1.0*	*50*	*0*	*100*	*85 - 114*	*49.16*	*1.81*	*20*	
Surr: Dibromofluoromethane	*47.28*	*1.0*	*50*	*0*	*94.6*	*80 - 119*	*47.28*	*0.00894*	*20*	

Revision: 1

ALS Houston, US Date: 30-Jun-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 37 May 2021
WorkOrder: HS21050689

QC BATCH REPORT

Batch ID: R384020 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS21050689-01MSD** Units: **ug/L** Analysis Date: **18-May-2021 21:19**
Client ID: **35BWW04_210513** Run ID: **VOA6_384020** SeqNo: **6101566** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*52.61*	*1.0*	*50*	*0*	*105*	*89 - 112*	*52.95*	*0.65*	*20*	

The following samples were analyzed in this batch: HS21050689-01 HS21050689-02

Revision: 1

ALS Houston, US Date: 30-Jun-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 37 May 2021
WorkOrder: HS21050689

QC BATCH REPORT

Batch ID: R383778 (0) **Instrument: ICS-Integrion** **Method: ANIONS BY SW9056A**

MBLK Sample ID: **MBLK-** Units: **mg/L** Analysis Date: **14-May-2021 10:18**
Client ID: Run ID: **ICS-Integrion_383778** SeqNo: **6095616** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	0.500	0.500								U
Nitrogen, Nitrate (As N)	0.100	0.100								U
Sulfate	0.500	0.500								U

LCS Sample ID: **LCS-** Units: **mg/L** Analysis Date: **14-May-2021 10:26**
Client ID: Run ID: **ICS-Integrion_383778** SeqNo: **6095617** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	19.88	0.500	20	0	99.4	80 - 120				
Nitrogen, Nitrate (As N)	3.808	0.100	4	0	95.2	80 - 120				
Sulfate	20.14	0.500	20	0	101	80 - 120				

MS Sample ID: **HS21050697-03MS** Units: **mg/L** Analysis Date: **14-May-2021 14:53**
Client ID: Run ID: **ICS-Integrion_383778** SeqNo: **6095625** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	11.23	0.500	10	1.25	99.8	80 - 120				
Nitrogen, Nitrate (As N)	2.092	0.100	2	0.0796	101	80 - 120				
Sulfate	22.09	0.500	10	12.56	95.2	80 - 120				

MSD Sample ID: **HS21050697-03MSD** Units: **mg/L** Analysis Date: **14-May-2021 15:00**
Client ID: Run ID: **ICS-Integrion_383778** SeqNo: **6095626** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	11.41	0.500	10	1.25	102	80 - 120	11.23	1.59	20	
Nitrogen, Nitrate (As N)	2.129	0.100	2	0.0796	102	80 - 120	2.092	1.76	20	
Sulfate	22.63	0.500	10	12.56	101	80 - 120	22.09	2.44	20	

The following samples were analyzed in this batch: HS21050689-01

Revision: 1

ALS Houston, US Date: 30-Jun-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 37 May 2021
WorkOrder: HS21050689

QC BATCH REPORT

Batch ID: R383987 (0) **Instrument: TOC_04** **Method: TOTAL ORGANIC CARBON - SM5310B**

MBLK Sample ID: **MBLK-05192021** Units: **mg/L** Analysis Date: **19-May-2021 23:57**
Client ID: Run ID: **TOC_04_383987** SeqNo: **6100940** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	0.500	1.00								U

LCS Sample ID: **LCS-05192021** Units: **mg/L** Analysis Date: **20-May-2021 00:09**
Client ID: Run ID: **TOC_04_383987** SeqNo: **6100941** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	10.21	1.00	10	0	102	85 - 115				

LCSD Sample ID: **LCSD-05192021** Units: **mg/L** Analysis Date: **20-May-2021 00:20**
Client ID: Run ID: **TOC_04_383987** SeqNo: **6100942** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	10.09	1.00	10	0	101	85 - 115	10.21	1.18	20	

MS Sample ID: **HS21050697-03MS** Units: **mg/L** Analysis Date: **20-May-2021 01:15**
Client ID: Run ID: **TOC_04_383987** SeqNo: **6100946** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	12.37	1.00	10	0.9276	114	80 - 120				

The following samples were analyzed in this batch: HS21050689-01

Revision: 1

ALS Houston, US Date: 30-Jun-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 37 May 2021
WorkOrder: **HS21050689**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL/SDL

Acronym	Description
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitaion Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	21-022-0	26-Mar-2022
Dept of Defense	PJLA L20-507-R2	22-Dec-2021
Illinois	2000322021-7	09-May-2022
Kansas	E-10352 2020-2021	31-Jul-2021
Kentucky	123043, 2021-2022	30-Apr-2022
Louisiana	03087, 2021-2022	30-Jun-2022
North Carolina	624-2021	31-Dec-2021
Oklahoma	2020-165	31-Aug-2021
Texas	T104704231-21-27	30-Apr-2022
Utah	TX026932021-10	31-Jul-2021

ALS Houston, US Date: 30-Jun-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 37 May 2021
Work Order: HS21050689

SAMPLE TRACKING

Lab Samp ID	Client Sample ID	Action	Date	Person	New Location
HS21050689-01	35BWW04_210513	Login	5/14/2021 11:13:32 AM	JML	WET037
HS21050689-01	35BWW04_210513	Login	5/14/2021 11:13:32 AM	JML	VOA042
HS21050689-01	35BWW04_210513	Login	5/14/2021 11:13:32 AM	JML	WET037
HS21050689-01	35BWW04_210513	Login	5/14/2021 11:13:32 AM	JML	Sub
HS21050689-02	35BWW20_210513	Login	5/14/2021 12:13:40 PM	JML	VOA042
HS21050689-03	Trip Blank_210513	Login	5/14/2021 12:13:40 PM	JML	VOA042

Revision:1

ALS Houston, US Date: 30-Jun-21

Sample Receipt Checklist

Work Order ID: HS21050689 **Date/Time Received:** **14-May-2021 09:25**

Client Name: CBI-Houston **Received by:** **Jared R. Makan**

Completed By: */S/ Jared R. Makan* (eSignature) 14-May-2021 12:18 (Date/Time) **Reviewed by:** */S/ Ragen Giga* (eSignature) 17-May-2021 09:12 (Date/Time)

Matrices: **Water** Carrier name: **FedEx Priority Overnight**

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	1 Page(s)
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Samplers name present on COC?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	

Temperature(s)/Thermometer(s):	0.8°C UC/C	IR31
Cooler(s)/Kit(s):	46963	
Date/Time sample(s) sent to storage:	05/14/2021 12:20	

Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:			

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

CHAIN OF CUSTODY

Name Of Lab Shipping To: ALS 10450 Stancliff Rd. Suite 210 Houston, TX. 77099 (281) 530-5656 ATTN: R.J Modashia

Page 1 of 1

Project: APTIM / ARMY AMMN. PLANT (LHAAP) / GROUNDWATER TREATMENT PLANT (GWTP) / KARNACK, TEXAS	LONGHORN	Project No. 501032
Job: **LHAAP 37 May 2021**		
Prepared By: Scott Beesinger		P.O. Number

Field Sample I.D.	Sample Matrix	Date / Time	MS / MSD	No. OF CONTAINERS	Analyses: VOC by SW 8260B	TOC by SM5310C	MEE by RSK 175	Anions (chloride sulfate, nitrate) by SW9056	CO2 by RSK 175	Perchlorate by SW6850					Remarks (Preservatives, etc.)	Lab I.D.#
35BWW04-210513	WG	5/13/21/1150		12	X	X	X	X	X							
35BWW20-210513	WG	5/13/21/1240		3	X											
TRIPBLANK-210513	W	5/13/21		2	X											

Additional Remarks: **Standard TAT on all parameters. Please email results to Vicki.Graves@aptim.com and invoices to fedinvoices@aptim.com**

Relinquished By:	Date	Time	Received By:	Date	Time	Relinquished By:	Date	Time	Received By:	Date	Time
Scott Beesinger	5/13/21	1430	Patti Mac	5/19/21	9:25						

For Lab Use Only

Received At Lab By:	Date	Time	Airbill No.	Opened By:	Date	Time	Temp of Container	Seal No.	Condition

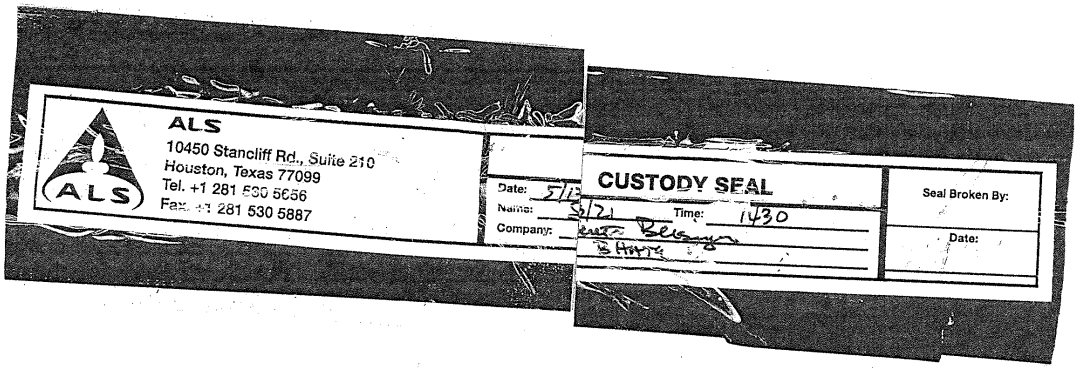
Remarks:

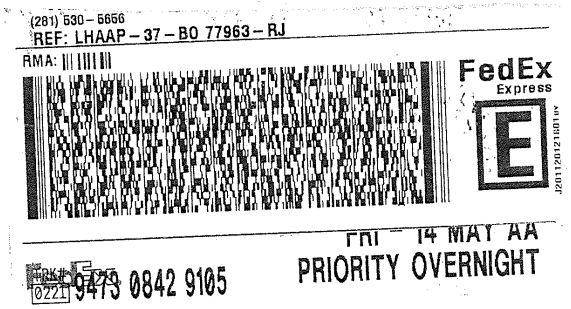
46963 OEC 1831 CFO

HS21050689

Aptim Environmental & Infrastucture, Inc.
Longhorn Army Ammunition Plant

(Word) S:\1-ces\Forms\Chain of Custody - BiWeekly


ALS
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887
Date:
Name:
Company:
CUSTODY SEAL
Time: 1430
Seal Broken By:
Date:


(281) 530 - 5656
REF: LHAAP - 37 - BO 77963 - RJ
RMA:
FedEx
Express
FRI - 14 MAY AA
PRIORITY OVERNIGHT
9473 0842 9105

LABORATORY REPORT

May 27, 2021

Ragen Giga
ALS Environmental - US
10450 Stancliff Rd Suite 210
Houston, TX 77099

RE: HS21050689

Dear Ragen:

Enclosed are the results of the sample submitted to our laboratory on May 18, 2021. For your reference, this analysis has been assigned our service request number P2102700.

The analysis was performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

ALS | Environmental

By Hayden Akers at 6:00 pm, May 27, 2021

Hayden Akers
Project Manager

Client: ALS Environmental - US Service Request No: P2102700
Project: HS21050689

CASE NARRATIVE

The samples were received intact under chain of custody on May 18, 2021 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Carbon Dioxide Analysis

The samples were analyzed for carbon dioxide using a gas chromatograph equipped with a thermal conductivity detector (TCD). A known amount of liquid was displaced by injecting 8.0 milliliters of helium creating a headspace in the sample vial. Each sample vial was agitated using a sonic disrupter for fifteen minutes and then allowed to equilibrate for at least four hours. A volume of the headspace was withdrawn using a gas-tight syringe and analyzed using a manual injection technique. The amount of dissolved gases (carbon dioxide) in the original sample was calculated using Henry's Law. This method was performed with guidance from RSK 175 as described in laboratory SOP VOA-DISGAS. This analyte is included on the laboratory's NELAP and DoD-ELAP scope of accreditation.

Methane, Ethene and Ethane Analysis

The samples were analyzed for methane, ethene, and ethane using a gas chromatograph equipped with a flame ionization detector (FID). A known amount of liquid was displaced by injecting 8.0 milliliters of helium creating a headspace in the sample vial. Each sample vial was agitated using a sonic disrupter for fifteen minutes and then allowed to equilibrate for at least two hours. A volume of the headspace was withdrawn using a gas-tight syringe and analyzed using a manual injection technique. The amount of dissolved gases (methane, ethene and ethane) in the original sample was calculated using Henry's Law. This method was performed with guidance from RSK 175. This method is included on the laboratory's NELAP and DoD-ELAP scope of accreditation. Any analytes flagged with an X are not included on the laboratory's NELAP or DoD-ELAP accreditation.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

ALS Environmental – Simi Valley

CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

Agency	Web Site	Number
Alaska DEC	http://dec.alaska.gov/eh/lab.aspx	17-019
Arizona DHS	http://www.azdhs.gov/preparedness/state-laboratory/lab-licensure-certification/index.php#laboratory-licensure-home	AZ0694
Florida DOH (NELAP)	http://www.floridahealth.gov/licensing-and-regulation/environmental-laboratories/index.html	E871020
Louisiana DEQ (NELAP)	http://www.deq.louisiana.gov/page/la-lab-accreditation	05071
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/professionals/labCert.shtml	2018027
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	1776326
New Jersey DEP (NELAP)	http://www.nj.gov/dep/enforcement/oqa.html	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://www.oregon.gov/oha/ph/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	4068-008
Pennsylvania DEP	http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx	68-03307 (Registration)
PJLA (DoD ELAP)	http://www.pjlabs.com/search-accredited-labs	65818 (Testing)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/agency/qa/env_lab_accreditation.html	T104704413-19-10
Utah DOH (NELAP)	http://health.utah.gov/lab/lab_cert_env	CA016272019-10
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946

Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website.

Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.

ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: ALS Environmental - US
Service Request: P2102700
Project ID: HS21050689

Date Received: 5/18/2021
Time Received: 09:30

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	RSK 175 - CO2	RSK 175 - Gases
35BWW04_210513	P2102700-001	Water	5/13/2021	11:50	X	X

RJ02700

10450 Stancliff Rd, Ste 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887
www.alsglobal.com

Subcontract Chain of Custody

SAMPLING STATE: **Dept of Defense** **COC ID:** **16125**

SUBCONTRACT TO:

ALS Environmental
2655 Park Center Drive, Suite A
Simi Valley, CA 93065

Phone: +1 805 526 7161

CUSTOMER INFORMATION:

Company:	ALS Houston
Contact:	RJ Modashia
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Email:	RJ.Modashia@alsglobal.com
Alternate Contact:	Jumoke M. Lawal
Email:	jumoke.lawal@alsglobal.com

INVOICE INFORMATION:

Company:	ALS Houston
Contact:	Accounts Payable
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Reference:	HS21050689
TSR:	Sonia West

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS21050689-01**	**35BWW04_210513**	**Groundwater**	**13 May 2021 11:50**
	MEE + CO2. Provide DOD LV II & IV pdf separate. EDD. EQuIS 5.0 - Longhorn		Equis	c 28 May 2021 4, 8 blank

Comments: Please analyze for the analysis listed above.
Send report to the emails shown above.

QC Level: DOD IV (DoD Data Package)

Relinquished By: _____ Date/Time: 5/17/2021 1800

Received By: _____ Date/Time: 5-18-21 0930

Cooler ID(s): _____ Temperature(s): _____

ALS Environmental
Sample Acceptance Check Form

Client: ALS Laboratory Group Work order: P2102700

Project: HS21050689

Sample(s) received on: 5/18/2021 Date opened: 5/18/2021 by: ADAVID

Note: This form is used for all samples received by ALS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

		Yes	No	N/A
1	Were **sample containers** properly marked with client sample ID?	☒	☐	☐
2	Did **sample containers** arrive in good condition?	☒	☐	☐
3	Were **chain-of-custody** papers used and filled out?	☒	☐	☐
4	Did **sample container labels** and/or tags agree with custody papers?	☒	☐	☐
5	Was **sample volume** received adequate for analysis?	☒	☐	☐
6	Are samples within specified holding times?	☒	☐	☐
7	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☒	☐	☐
	Cooler Temperature: ° C Blank Temperature: 4.8° C	Wet Ice		
8	Were **custody seals** on outside of cooler/Box/Container?	☒	☐	☐
	Location of seal(s)? Cooler lid. Sealing Lid?	☒	☐	☐
	Were signature and date included?	☒	☐	☐
	Were seals intact?	☒	☐	☐
9	Do containers have appropriate **preservation**, according to method/SOP or Client specified information?	☒	☐	☐
	Is there a client indication that the submitted samples are **pH** preserved?	☒	☐	☐
	Were **VOA vials** checked for presence/absence of air bubbles?	☒	☐	☐
	Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?	☐	☒	☐
10	**Tubes:** Are the tubes capped and intact?	☐	☐	☒
11	**Badges:** Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P2102700-001.01	40mL VOA NP		5		A	CB 5/26/21
P2102700-001.02	40mL VOA NP				A	
P2102700-001.03	40mL VOA NP				A	
P2102700-001.04	40ml VOA HCL		1		A	CB 5/25/21
P2102700-001.05	40ml VOA HCL				A	
P2102700-001.06	40ml VOA HCL				A	

Explain any discrepancies: (include lab sample ID numbers):

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Environmental - US**
Client Sample ID: **35BWW04_210513**
Client Project ID: **HS21050689**

ALS Project ID: P2102700
ALS Sample ID: P2102700-001

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Connor Barrett
Matrix: Water
Test Notes:

Date Collected: 05/13/21
Date Received: 05/18/21
Date Analyzed: 05/25/21
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	1.0	1.3	1.0	0.51	**U**
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Environmental - US**
Client Sample ID: **Method Control Sample** ALS Project ID: P2102700
Client Project ID: **HS21050689** ALS Sample ID: P210525-MB

Test Code: RSK 175 Date Collected: NA
Instrument ID: HP5890A/GC10/FID Date Received: NA
Analyst: Connor Barrett Date Analyzed: 5/25/21
Matrix: Water Volume(s) Analyzed: 0.10 ml(s)
Test Notes:

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	1.0	1.3	1.0	0.51	**U**
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

The Method Control Sample is laboratory water carried through the entire analytical process.
U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **ALS Environmental - US**
Client Sample ID: **Duplicate Lab Control Sample**
Client Project ID: **HS21050689**

ALS Project ID: P2102700
ALS Sample ID: P210525-LCS
P210525-DLCS

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Connor Barrett
Matrix: Water
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 5/25/21
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Spike Amount LCS / DLCS µg/L	Result$_1$ LCS µg/L	Result$_1$ DLCS µg/L	% Recovery LCS	% Recovery DLCS	DOD Acceptance Limits	RPD	RPD Limit	Data Qualifier
74-82-8	Methane	2.52	2.52	2.38	**100**	**94**	73-125	6	26	
74-85-1	Ethene	4.40	5.15	5.10	**117**	**116**	72-133	0.9	11	
74-84-0	Ethane	4.72	5.01	4.92	**106**	**104**	74-131	2	10	

$_1$ = The concentration shown includes a subtraction of the Method Control Sample value, even if the result is less than the MRL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Environmental - US**
Client Project ID: **HS21050689** ALS Project ID: P2102700

Carbon Dioxide

Test Code: RSK 175
Instrument ID: HP5890A/GC10/TCD
Analyst: Connor Barrett
Matrix: Liquid
Test Notes:

Date(s) Collected: 5/13/21
Date Received: 5/18/21
Date Analyzed: 5/26/21

Client Sample ID	ALS Sample ID	Injection Volume ml(s)	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
35BWW04_210513	P2102700-001	0.10	**150,000**	1,000	860	370	
Method Control Sample	P210526-MB	0.10	860	1,000	860	370	**U**

The Method Control Sample is laboratory water carried through the entire analytical process.
U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **ALS Environmental - US**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P2102700
Client Project ID: **HS21050689** ALS Sample ID: P210526-DLCS

Test Code: RSK 175 Date Collected: NA
Instrument ID: HP5890A/GC10/TCD Date Received: NA
Analyst: Connor Barrett Date Analyzed: 5/26/21
Matrix: Liquid Volume(s) Analyzed: NA ml(s)
Test Notes:

CAS #	Compound	Spike Amount LCS / DLCS ug/L	Result[1] LCS ug/L	Result[1] DLCS ug/L	% Recovery LCS	% Recovery DLCS	DOD Acceptance Limits	RPD	RPD Limit	Data Qualifier
124-38-9	Carbon Dioxide	22,900	19,200	19,200	**84**	**84**	80-122	0	12	

[1] = The concentration shown includes a subtraction of the Method Control Sample value, even if the result is less than the MRL.

10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887

May 28, 2021

Vicki Graves
Aptim Environmental & Infrastucture, Inc.
10333 Richmond Ave
Ste 1030
Houston, TX 77042

Work Order: **HS21050697**

Laboratory Results for: **LHAAP 37 May 2021**

Dear Vicki Graves ,

ALS Environmental received 6 sample(s) on May 14, 2021 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Generated By: JUMOKE.LAWAL
Ragen Giga
Project Manager

ALS Houston, US Date: 28-May-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 37 May 2021
Work Order: HS21050697

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS21050697-01	35BWW26_210513	Groundwater		13-May-2021 07:10	14-May-2021 09:25	☐
HS21050697-02	35BWW01_210513	Groundwater		13-May-2021 08:00	14-May-2021 09:25	☐
HS21050697-03	35BWW08_210513	Groundwater		13-May-2021 08:45	14-May-2021 09:25	☐
HS21050697-04	35BWW10_210513	Groundwater		13-May-2021 09:40	14-May-2021 09:25	☐
HS21050697-05	35BWW05_210513	Groundwater		13-May-2021 10:25	14-May-2021 09:25	☐
HS21050697-06	LHSMW58_210513	Groundwater		13-May-2021 11:05	14-May-2021 09:25	☐

ALS Houston, US Date: 28-May-21

Client: Aptim Environmental & Infrastucture, Inc. **CASE NARRATIVE**
Project: LHAAP 37 May 2021
Work Order: HS21050697

Work Order Comments

• The analysis for Methane, Methene, Ethane and CO2 by RSK175 was subcontracted to ALS Simi Valley, CA. Final report attached.

GCMS Volatiles by Method SW8260

Batch ID: R384028

Sample ID: 35BWW08_210513(HS21050697-03MSD

• The RPD between the MS and MSD was outside of the control limit. Chloroethane

WetChemistry by Method SM5310B

Batch ID: R383987

• The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method SW9056

Batch ID: R383778

• The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

ALS Houston, US Date: 28-May-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 37 May 2021
Sample ID: 35BWW26_210513
Collection Date: 13-May-2021 07:10

ANALYTICAL REPORT
WorkOrder:HS21050697
Lab ID:HS21050697-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 13:20
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 13:20
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	19-May-2021 13:20
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	ug/L	1	19-May-2021 13:20
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 13:20
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 13:20
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 13:20
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 13:20
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	19-May-2021 13:20
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	19-May-2021 13:20
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	19-May-2021 13:20
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 13:20
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 13:20
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 13:20
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	19-May-2021 13:20
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 13:20
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	19-May-2021 13:20
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 13:20
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	19-May-2021 13:20
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 13:20
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	19-May-2021 13:20
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 13:20
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	19-May-2021 13:20
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 13:20
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	19-May-2021 13:20
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	19-May-2021 13:20
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 13:20
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	19-May-2021 13:20
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	19-May-2021 13:20
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 13:20
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	19-May-2021 13:20
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 13:20
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 13:20
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	19-May-2021 13:20
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	19-May-2021 13:20
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	19-May-2021 13:20
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	19-May-2021 13:20
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 13:20
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 13:20

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 28-May-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 37 May 2021
Sample ID: 35BWW26_210513
Collection Date: 13-May-2021 07:10

ANALYTICAL REPORT
WorkOrder:HS21050697
Lab ID:HS21050697-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 13:20
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 13:20
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 13:20
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	19-May-2021 13:20
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 13:20
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 13:20
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 13:20
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 13:20
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	19-May-2021 13:20
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 13:20
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	19-May-2021 13:20
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	19-May-2021 13:20
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	19-May-2021 13:20
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 13:20
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 13:20
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 13:20
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 13:20
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 13:20
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 13:20
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 13:20
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 13:20
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 13:20
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 13:20
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 13:20
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 13:20
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 13:20
Surr: 1,2-Dichloroethane-d4	*92.7*			**0**	*81-118*	*%REC*	*1*	*19-May-2021 13:20*
Surr: 4-Bromofluorobenzene	*92.6*			**0**	*85-114*	*%REC*	*1*	*19-May-2021 13:20*
Surr: Dibromofluoromethane	*90.7*			**0**	*80-119*	*%REC*	*1*	*19-May-2021 13:20*
Surr: Toluene-d8	*111*			**0**	*89-112*	*%REC*	*1*	*19-May-2021 13:20*
TOTAL ORGANIC CARBON - SM5310B		**Method:SM5310B**						Analyst: JAC
Organic Carbon, Total	**0.857**	J	**0.500**	**0.500**	**1.00**	**mg/L**	1	20-May-2021 00:46
ANIONS BY SW9056A		**Method:SW9056**						Analyst: YP
Chloride	**32.9**		**0.200**	**0.500**	**0.500**	**mg/L**	1	14-May-2021 14:38
Nitrogen, Nitrate (As N)	**0.0817**	J	**0.0300**	**0.100**	**0.100**	**mg/L**	1	14-May-2021 14:38
Sulfate	**25.0**		**0.200**	**0.500**	**0.500**	**mg/L**	1	14-May-2021 14:38
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUBCA
Subcontract Analysis	See Attached		0	0		NA	1	28-May-2021 09:11

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 28-May-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 37 May 2021
Sample ID: 35BWW01_210513
Collection Date: 13-May-2021 08:00

ANALYTICAL REPORT
WorkOrder:HS21050697
Lab ID:HS21050697-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 13:41
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 13:41
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	19-May-2021 13:41
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	ug/L	1	19-May-2021 13:41
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 13:41
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 13:41
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 13:41
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 13:41
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	19-May-2021 13:41
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	19-May-2021 13:41
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	19-May-2021 13:41
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 13:41
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 13:41
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 13:41
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	19-May-2021 13:41
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 13:41
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	19-May-2021 13:41
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 13:41
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	19-May-2021 13:41
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 13:41
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	19-May-2021 13:41
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 13:41
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	19-May-2021 13:41
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 13:41
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	19-May-2021 13:41
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	19-May-2021 13:41
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 13:41
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	19-May-2021 13:41
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	19-May-2021 13:41
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 13:41
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	19-May-2021 13:41
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 13:41
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 13:41
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	19-May-2021 13:41
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	19-May-2021 13:41
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	19-May-2021 13:41
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	19-May-2021 13:41
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 13:41
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 13:41

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 28-May-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 37 May 2021
Sample ID: 35BWW01_210513
Collection Date: 13-May-2021 08:00

ANALYTICAL REPORT
WorkOrder:HS21050697
Lab ID:HS21050697-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 13:41
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 13:41
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 13:41
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	19-May-2021 13:41
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 13:41
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 13:41
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 13:41
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 13:41
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	19-May-2021 13:41
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 13:41
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	19-May-2021 13:41
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	19-May-2021 13:41
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	19-May-2021 13:41
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 13:41
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 13:41
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 13:41
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 13:41
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 13:41
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 13:41
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 13:41
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 13:41
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 13:41
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 13:41
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 13:41
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 13:41
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 13:41
Surr: 1,2-Dichloroethane-d4	*93.7*			**0**	*81-118*	*%REC*	*1*	*19-May-2021 13:41*
Surr: 4-Bromofluorobenzene	*93.0*			**0**	*85-114*	*%REC*	*1*	*19-May-2021 13:41*
Surr: Dibromofluoromethane	*91.0*			**0**	*80-119*	*%REC*	*1*	*19-May-2021 13:41*
Surr: Toluene-d8	*110*			**0**	*89-112*	*%REC*	*1*	*19-May-2021 13:41*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 28-May-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 37 May 2021
Sample ID: 35BWW08_210513
Collection Date: 13-May-2021 08:45

ANALYTICAL REPORT
WorkOrder:HS21050697
Lab ID:HS21050697-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 14:02
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 14:02
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	19-May-2021 14:02
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	ug/L	1	19-May-2021 14:02
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 14:02
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 14:02
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 14:02
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 14:02
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	19-May-2021 14:02
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	19-May-2021 14:02
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	19-May-2021 14:02
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 14:02
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 14:02
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 14:02
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	19-May-2021 14:02
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 14:02
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	19-May-2021 14:02
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 14:02
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	19-May-2021 14:02
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 14:02
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	19-May-2021 14:02
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 14:02
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	19-May-2021 14:02
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 14:02
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	19-May-2021 14:02
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	19-May-2021 14:02
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 14:02
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	19-May-2021 14:02
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	19-May-2021 14:02
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 14:02
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	19-May-2021 14:02
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 14:02
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 14:02
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	19-May-2021 14:02
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	19-May-2021 14:02
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	19-May-2021 14:02
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	19-May-2021 14:02
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 14:02
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 14:02

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 28-May-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 37 May 2021
Sample ID: 35BWW08_210513
Collection Date: 13-May-2021 08:45

ANALYTICAL REPORT
WorkOrder:HS21050697
Lab ID:HS21050697-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 14:02
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 14:02
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 14:02
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	19-May-2021 14:02
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 14:02
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 14:02
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 14:02
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 14:02
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	19-May-2021 14:02
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 14:02
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	19-May-2021 14:02
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	19-May-2021 14:02
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	19-May-2021 14:02
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 14:02
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 14:02
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 14:02
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 14:02
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 14:02
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 14:02
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 14:02
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 14:02
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 14:02
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 14:02
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 14:02
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 14:02
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 14:02
Surr: 1,2-Dichloroethane-d4	*92.4*			**0**	*81-118*	*%REC*	*1*	*19-May-2021 14:02*
Surr: 4-Bromofluorobenzene	*92.7*			**0**	*85-114*	*%REC*	*1*	*19-May-2021 14:02*
Surr: Dibromofluoromethane	*89.9*			**0**	*80-119*	*%REC*	*1*	*19-May-2021 14:02*
Surr: Toluene-d8	*111*			**0**	*89-112*	*%REC*	*1*	*19-May-2021 14:02*
TOTAL ORGANIC CARBON - SM5310B		**Method:SM5310B**						Analyst: JAC
Organic Carbon, Total	**0.928**	J	**0.500**	**0.500**	**1.00**	**mg/L**	1	20-May-2021 01:00
ANIONS BY SW9056A		**Method:SW9056**						Analyst: YP
Chloride	**1.25**		**0.200**	**0.500**	**0.500**	**mg/L**	1	14-May-2021 14:46
Nitrogen, Nitrate (As N)	**0.0796**	J	**0.0300**	**0.100**	**0.100**	**mg/L**	1	14-May-2021 14:46
Sulfate	**12.6**		**0.200**	**0.500**	**0.500**	**mg/L**	1	14-May-2021 14:46
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUBCA
Subcontract Analysis	See Attached		0	0		NA	1	28-May-2021 09:11

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 28-May-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 37 May 2021
Sample ID: 35BWW10_210513
Collection Date: 13-May-2021 09:40

ANALYTICAL REPORT
WorkOrder:HS21050697
Lab ID:HS21050697-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 14:23
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 14:23
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	19-May-2021 14:23
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	ug/L	1	19-May-2021 14:23
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 14:23
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 14:23
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 14:23
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 14:23
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	19-May-2021 14:23
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	19-May-2021 14:23
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	19-May-2021 14:23
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 14:23
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 14:23
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 14:23
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	19-May-2021 14:23
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 14:23
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	19-May-2021 14:23
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 14:23
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	19-May-2021 14:23
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 14:23
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	19-May-2021 14:23
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 14:23
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	19-May-2021 14:23
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 14:23
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	19-May-2021 14:23
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	19-May-2021 14:23
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 14:23
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	19-May-2021 14:23
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	19-May-2021 14:23
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 14:23
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	19-May-2021 14:23
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 14:23
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 14:23
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	19-May-2021 14:23
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	19-May-2021 14:23
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	19-May-2021 14:23
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	19-May-2021 14:23
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 14:23
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 14:23

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 28-May-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 37 May 2021
Sample ID: 35BWW10_210513
Collection Date: 13-May-2021 09:40

ANALYTICAL REPORT
WorkOrder:HS21050697
Lab ID:HS21050697-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 14:23
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 14:23
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 14:23
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	19-May-2021 14:23
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 14:23
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 14:23
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 14:23
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 14:23
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	19-May-2021 14:23
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 14:23
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	19-May-2021 14:23
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	19-May-2021 14:23
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	19-May-2021 14:23
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 14:23
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 14:23
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 14:23
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 14:23
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 14:23
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 14:23
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 14:23
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 14:23
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 14:23
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 14:23
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 14:23
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 14:23
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 14:23
Surr: 1,2-Dichloroethane-d4	*93.9*			**0**	*81-118*	*%REC*	*1*	*19-May-2021 14:23*
Surr: 4-Bromofluorobenzene	*90.3*			**0**	*85-114*	*%REC*	*1*	*19-May-2021 14:23*
Surr: Dibromofluoromethane	*91.8*			**0**	*80-119*	*%REC*	*1*	*19-May-2021 14:23*
Surr: Toluene-d8	*111*			**0**	*89-112*	*%REC*	*1*	*19-May-2021 14:23*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 28-May-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 37 May 2021
Sample ID: 35BWW05_210513
Collection Date: 13-May-2021 10:25

ANALYTICAL REPORT
WorkOrder:HS21050697
Lab ID:HS21050697-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 14:44
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 14:44
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	19-May-2021 14:44
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	U	0.50	1.0	1.0	ug/L	1	19-May-2021 14:44
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 14:44
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 14:44
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 14:44
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 14:44
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	19-May-2021 14:44
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	19-May-2021 14:44
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	19-May-2021 14:44
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 14:44
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 14:44
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 14:44
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	19-May-2021 14:44
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 14:44
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	19-May-2021 14:44
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 14:44
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	19-May-2021 14:44
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 14:44
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	19-May-2021 14:44
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 14:44
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	19-May-2021 14:44
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 14:44
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	19-May-2021 14:44
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	19-May-2021 14:44
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 14:44
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	19-May-2021 14:44
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	19-May-2021 14:44
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 14:44
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	19-May-2021 14:44
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 14:44
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 14:44
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	19-May-2021 14:44
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	19-May-2021 14:44
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	19-May-2021 14:44
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	19-May-2021 14:44
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 14:44
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 14:44

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 28-May-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 37 May 2021
Sample ID: 35BWW05_210513
Collection Date: 13-May-2021 10:25

ANALYTICAL REPORT
WorkOrder:HS21050697
Lab ID:HS21050697-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 14:44
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 14:44
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 14:44
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	19-May-2021 14:44
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 14:44
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 14:44
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 14:44
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 14:44
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	19-May-2021 14:44
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 14:44
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	19-May-2021 14:44
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	19-May-2021 14:44
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	19-May-2021 14:44
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 14:44
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 14:44
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 14:44
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 14:44
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 14:44
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 14:44
Tetrachloroethene	**2.5**		**0.30**	**1.0**	**1.0**	**ug/L**	1	19-May-2021 14:44
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 14:44
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 14:44
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 14:44
Trichloroethene	**6.3**		**0.20**	**0.50**	**1.0**	**ug/L**	1	19-May-2021 14:44
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 14:44
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 14:44
Surr: 1,2-Dichloroethane-d4	*92.4*			**0**	*81-118*	*%REC*	*1*	*19-May-2021 14:44*
Surr: 4-Bromofluorobenzene	*85.0*			**0**	*85-114*	*%REC*	*1*	*19-May-2021 14:44*
Surr: Dibromofluoromethane	*90.5*			**0**	*80-119*	*%REC*	*1*	*19-May-2021 14:44*
Surr: Toluene-d8	*108*			**0**	*89-112*	*%REC*	*1*	*19-May-2021 14:44*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 28-May-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP 37 May 2021 WorkOrder:HS21050697
Sample ID: LHSMW58_210513 Lab ID:HS21050697-06
Collection Date: 13-May-2021 11:05 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 15:05
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 15:05
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	ug/L	1	19-May-2021 15:05
1,1,2-Trichlor-1,2,2-trifluoroethane	**0.73**	J	**0.50**	**1.0**	**1.0**	**ug/L**	1	19-May-2021 15:05
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 15:05
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 15:05
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 15:05
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 15:05
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	19-May-2021 15:05
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	19-May-2021 15:05
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	19-May-2021 15:05
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 15:05
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 15:05
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 15:05
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	ug/L	1	19-May-2021 15:05
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 15:05
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	ug/L	1	19-May-2021 15:05
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 15:05
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	19-May-2021 15:05
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 15:05
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	19-May-2021 15:05
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 15:05
2-Butanone	1.0	U	0.50	1.0	2.0	ug/L	1	19-May-2021 15:05
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 15:05
2-Hexanone	2.0	U	1.0	2.0	2.0	ug/L	1	19-May-2021 15:05
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	ug/L	1	19-May-2021 15:05
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 15:05
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	ug/L	1	19-May-2021 15:05
Acetone	2.0	U	0.40	2.0	2.0	ug/L	1	19-May-2021 15:05
Benzene	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 15:05
Bromobenzene	1.0	U	0.40	1.0	1.0	ug/L	1	19-May-2021 15:05
Bromochloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 15:05
Bromodichloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 15:05
Bromoform	1.0	U	0.40	1.0	1.0	ug/L	1	19-May-2021 15:05
Bromomethane	1.0	U	0.40	1.0	1.0	ug/L	1	19-May-2021 15:05
Carbon disulfide	2.0	U	0.60	2.0	2.0	ug/L	1	19-May-2021 15:05
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	ug/L	1	19-May-2021 15:05
Chlorobenzene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 15:05

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 28-May-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 37 May 2021
Sample ID: LHSMW58_210513
Collection Date: 13-May-2021 11:05

ANALYTICAL REPORT
WorkOrder:HS21050697
Lab ID:HS21050697-06
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloroethane	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 15:05
Chloroform	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 15:05
Chloromethane	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 15:05
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 15:05
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	ug/L	1	19-May-2021 15:05
Dibromochloromethane	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 15:05
Dibromomethane	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 15:05
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 15:05
Ethylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 15:05
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	ug/L	1	19-May-2021 15:05
Isopropylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 15:05
m,p-Xylene	1.0	U	0.50	1.0	2.0	ug/L	1	19-May-2021 15:05
Methylene chloride	2.0	U	0.40	2.0	2.0	ug/L	1	19-May-2021 15:05
n-Butylbenzene	1.0	U	0.40	1.0	1.0	ug/L	1	19-May-2021 15:05
n-Propylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 15:05
Naphthalene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 15:05
o-Xylene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 15:05
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 15:05
Styrene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 15:05
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 15:05
Tetrachloroethene	**19**		**0.30**	**1.0**	**1.0**	**ug/L**	1	19-May-2021 15:05
Toluene	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 15:05
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 15:05
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 15:05
Trichloroethene	**1.1**		**0.20**	**0.50**	**1.0**	**ug/L**	1	19-May-2021 15:05
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	ug/L	1	19-May-2021 15:05
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	19-May-2021 15:05
Surr: 1,2-Dichloroethane-d4	*91.5*			**0**	*81-118*	*%REC*	*1*	*19-May-2021 15:05*
Surr: 4-Bromofluorobenzene	*87.1*			**0**	*85-114*	*%REC*	*1*	*19-May-2021 15:05*
Surr: Dibromofluoromethane	*91.5*			**0**	*80-119*	*%REC*	*1*	*19-May-2021 15:05*
Surr: Toluene-d8	*109*			**0**	*89-112*	*%REC*	*1*	*19-May-2021 15:05*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 28-May-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 37 May 2021
WorkOrder: HS21050697

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R383778 (0)	**Test Name :** ANIONS BY SW9056A				**Matrix:** Groundwater	
HS21050697-01	35BWW26_210513	13 May 2021 07:10			14 May 2021 14:38	1
HS21050697-03	35BWW08_210513	13 May 2021 08:45			14 May 2021 14:46	1
Batch ID: R383987 (0)	**Test Name :** TOTAL ORGANIC CARBON - SM5310B				**Matrix:** Groundwater	
HS21050697-01	35BWW26_210513	13 May 2021 07:10			20 May 2021 00:46	1
HS21050697-03	35BWW08_210513	13 May 2021 08:45			20 May 2021 01:00	1
Batch ID: R384028 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Groundwater	
HS21050697-01	35BWW26_210513	13 May 2021 07:10			19 May 2021 13:20	1
HS21050697-02	35BWW01_210513	13 May 2021 08:00			19 May 2021 13:41	1
HS21050697-03	35BWW08_210513	13 May 2021 08:45			19 May 2021 14:02	1
HS21050697-04	35BWW10_210513	13 May 2021 09:40			19 May 2021 14:23	1
HS21050697-05	35BWW05_210513	13 May 2021 10:25			19 May 2021 14:44	1
HS21050697-06	LHSMW58_210513	13 May 2021 11:05			19 May 2021 15:05	1
Batch ID: R384568 (0)	**Test Name :** SUBCONTRACT ANALYSIS - RSK				**Matrix:** Groundwater	
HS21050697-01	35BWW26_210513	13 May 2021 07:10			28 May 2021 09:11	1
HS21050697-03	35BWW08_210513	13 May 2021 08:45			28 May 2021 09:11	1

ALS Houston, US Date: 28-May-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 37 May 2021
WorkOrder: HS21050697

QC BATCH REPORT

Batch ID: R384028 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-210519** Units: **ug/L** Analysis Date: **19-May-2021 12:59**
Client ID: Run ID: **VOA6_384028** SeqNo: **6101732** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	1.0	1.0								U
1,1,1-Trichloroethane	0.50	1.0								U
1,1,2,2-Tetrachloroethane	1.0	1.0								U
1,1,2-Trichlor-1,2,2-trifluoroethane	1.0	1.0								U
1,1,2-Trichloroethane	1.0	1.0								U
1,1-Dichloroethane	0.50	1.0								U
1,1-Dichloroethene	0.50	1.0								U
1,1-Dichloropropene	1.0	1.0								U
1,2,3-Trichlorobenzene	1.0	1.0								U
1,2,3-Trichloropropane	1.0	1.0								U
1,2,4-Trichlorobenzene	1.0	1.0								U
1,2,4-Trimethylbenzene	1.0	1.0								U
1,2-Dibromo-3-chloropropane	0.50	1.0								U
1,2-Dibromoethane	0.50	1.0								U
1,2-Dichlorobenzene	1.0	1.0								U
1,2-Dichloroethane	0.50	1.0								U
1,2-Dichloropropane	1.0	1.0								U
1,3,5-Trimethylbenzene	1.0	1.0								U
1,3-Dichlorobenzene	1.0	1.0								U
1,3-Dichloropropane	1.0	1.0								U
1,4-Dichlorobenzene	1.0	1.0								U
2,2-Dichloropropane	0.50	1.0								U
2-Butanone	1.0	2.0								U
2-Chlorotoluene	1.0	1.0								U
2-Hexanone	2.0	2.0								U
4-Chlorotoluene	1.0	1.0								U
4-Isopropyltoluene	1.0	1.0								U
4-Methyl-2-pentanone	2.0	2.0								U
Acetone	2.0	2.0								U
Benzene	0.50	1.0								U
Bromobenzene	1.0	1.0								U
Bromochloromethane	0.50	1.0								U
Bromodichloromethane	0.50	1.0								U
Bromoform	1.0	1.0								U

ALS Houston, US Date: 28-May-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 37 May 2021
WorkOrder: HS21050697

QC BATCH REPORT

Batch ID: R384028 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-210519** Units: **ug/L** Analysis Date: **19-May-2021 12:59**
Client ID: Run ID: **VOA6_384028** SeqNo: **6101732** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromomethane	1.0	1.0								U
Carbon disulfide	2.0	2.0								U
Carbon tetrachloride	1.0	1.0								U
Chlorobenzene	1.0	1.0								U
Chloroethane	1.0	1.0								U
Chloroform	0.50	1.0								U
Chloromethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
cis-1,3-Dichloropropene	0.50	1.0								U
Dibromochloromethane	1.0	1.0								U
Dibromomethane	0.50	1.0								U
Dichlorodifluoromethane	1.0	1.0								U
Ethylbenzene	1.0	1.0								U
Hexachlorobutadiene	1.0	1.0								U
Isopropylbenzene	1.0	1.0								U
m,p-Xylene	1.0	2.0								U
Methylene chloride	2.0	2.0								U
Naphthalene	1.0	1.0								U
n-Butylbenzene	1.0	1.0								U
n-Propylbenzene	1.0	1.0								U
o-Xylene	1.0	1.0								U
sec-Butylbenzene	1.0	1.0								U
Styrene	1.0	1.0								U
tert-Butylbenzene	1.0	1.0								U
Tetrachloroethene	1.0	1.0								U
Toluene	0.50	1.0								U
trans-1,2-Dichloroethene	0.50	1.0								U
trans-1,3-Dichloropropene	0.50	1.0								U
Trichloroethene	0.50	1.0								U
Trichlorofluoromethane	1.0	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*47.28*	*1.0*	*50*	*0*	*94.6*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*46.67*	*1.0*	*50*	*0*	*93.3*	*85 - 114*				
Surr: Dibromofluoromethane	*45.94*	*1.0*	*50*	*0*	*91.9*	*80 - 119*				

ALS Houston, US Date: 28-May-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 37 May 2021
WorkOrder: HS21050697

QC BATCH REPORT

Batch ID: R384028 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-210519** Units: **ug/L** Analysis Date: **19-May-2021 12:59**
Client ID: Run ID: **VOA6_384028** SeqNo: **6101732** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*54.75*	*1.0*	*50*	*0*	*109*	*89 - 112*				

ALS Houston, US Date: 28-May-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 37 May 2021
WorkOrder: HS21050697

QC BATCH REPORT

Batch ID: R384028 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

LCS Sample ID: **VLCSW-210519** Units: **ug/L** Analysis Date: **19-May-2021 12:17**
Client ID: Run ID: **VOA6_384028** SeqNo: **6101731** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	18.49	1.0	20	0	92.4	78 - 124				
1,1,1-Trichloroethane	19.26	1.0	20	0	96.3	74 - 131				
1,1,2,2-Tetrachloroethane	17.67	1.0	20	0	88.4	71 - 121				
1,1,2-Trichlor-1,2,2-trifluoroethane	14.79	1.0	20	0	74.0	70 - 136				
1,1,2-Trichloroethane	18.11	1.0	20	0	90.5	80 - 119				
1,1-Dichloroethane	19.74	1.0	20	0	98.7	77 - 125				
1,1-Dichloroethene	17.45	1.0	20	0	87.3	71 - 131				
1,1-Dichloropropene	18.84	1.0	20	0	94.2	78 - 125				
1,2,3-Trichlorobenzene	17.33	1.0	20	0	86.6	69 - 129				
1,2,3-Trichloropropane	17.49	1.0	20	0	87.4	73 - 122				
1,2,4-Trichlorobenzene	18.2	1.0	20	0	91.0	69 - 130				
1,2,4-Trimethylbenzene	18.78	1.0	20	0	93.9	76 - 124				
1,2-Dibromo-3-chloropropane	17.04	1.0	20	0	85.2	62 - 128				
1,2-Dibromoethane	18.61	1.0	20	0	93.1	77 - 121				
1,2-Dichlorobenzene	17.71	1.0	20	0	88.5	80 - 119				
1,2-Dichloroethane	20.16	1.0	20	0	101	73 - 128				
1,2-Dichloropropane	19.27	1.0	20	0	96.3	78 - 122				
1,3,5-Trimethylbenzene	18.82	1.0	20	0	94.1	75 - 124				
1,3-Dichlorobenzene	19.13	1.0	20	0	95.6	80 - 119				
1,3-Dichloropropane	19.14	1.0	20	0	95.7	80 - 119				
1,4-Dichlorobenzene	19.24	1.0	20	0	96.2	79 - 118				
2,2-Dichloropropane	20.29	1.0	20	0	101	60 - 139				
2-Butanone	36.81	2.0	40	0	92.0	56 - 143				
2-Chlorotoluene	18.57	1.0	20	0	92.9	79 - 122				
2-Hexanone	34.55	2.0	40	0	86.4	57 - 139				
4-Chlorotoluene	19.32	1.0	20	0	96.6	78 - 122				
4-Isopropyltoluene	18.57	1.0	20	0	92.8	77 - 127				
4-Methyl-2-pentanone	35.91	2.0	40	0	89.8	67 - 130				
Acetone	42.44	2.0	40	0	106	39 - 160				
Benzene	19.55	1.0	20	0	97.8	79 - 120				
Bromobenzene	19.62	1.0	20	0	98.1	80 - 120				
Bromochloromethane	19.32	1.0	20	0	96.6	78 - 123				
Bromodichloromethane	19.66	1.0	20	0	98.3	79 - 125				
Bromoform	16.94	1.0	20	0	84.7	66 - 130				

ALS Houston, US Date: 28-May-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 37 May 2021
WorkOrder: HS21050697

QC BATCH REPORT

Batch ID: R384028 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

LCS Sample ID: **VLCSW-210519** Units: **ug/L** Analysis Date: **19-May-2021 12:17**
Client ID: Run ID: **VOA6_384028** SeqNo: **6101731** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromomethane	22.13	1.0	20	0	111	53 - 141				
Carbon disulfide	39.11	2.0	40	0	97.8	64 - 133				
Carbon tetrachloride	17.83	1.0	20	0	89.1	72 - 136				
Chlorobenzene	18.89	1.0	20	0	94.5	82 - 118				
Chloroethane	20.77	1.0	20	0	104	60 - 138				
Chloroform	19.62	1.0	20	0	98.1	79 - 124				
Chloromethane	21.97	1.0	20	0	110	50 - 139				
cis-1,2-Dichloroethene	19.62	1.0	20	0	98.1	78 - 123				
cis-1,3-Dichloropropene	20.32	1.0	20	0	102	75 - 124				
Dibromochloromethane	18.64	1.0	20	0	93.2	74 - 126				
Dibromomethane	19.83	1.0	20	0	99.1	79 - 123				
Dichlorodifluoromethane	19.4	1.0	20	0	97.0	32 - 152				
Ethylbenzene	18.57	1.0	20	0	92.9	79 - 121				
Hexachlorobutadiene	21.11	1.0	20	0	106	66 - 134				
Isopropylbenzene	17.97	1.0	20	0	89.8	72 - 131				
m,p-Xylene	37.24	2.0	40	0	93.1	80 - 121				
Methylene chloride	19.96	2.0	20	0	99.8	74 - 124				
Naphthalene	17.59	1.0	20	0	88.0	61 - 128				
n-Butylbenzene	18.51	1.0	20	0	92.6	75 - 128				
n-Propylbenzene	18.81	1.0	20	0	94.0	76 - 126				
o-Xylene	18.25	1.0	20	0	91.3	78 - 122				
sec-Butylbenzene	17.88	1.0	20	0	89.4	77 - 126				
Styrene	18.63	1.0	20	0	93.2	78 - 123				
tert-Butylbenzene	17.31	1.0	20	0	86.5	78 - 124				
Tetrachloroethene	19.31	1.0	20	0	96.5	74 - 129				
Toluene	19.49	1.0	20	0	97.4	80 - 121				
trans-1,2-Dichloroethene	20.17	1.0	20	0	101	75 - 124				
trans-1,3-Dichloropropene	20.09	1.0	20	0	100	73 - 127				
Trichloroethene	19.71	1.0	20	0	98.6	79 - 123				
Trichlorofluoromethane	17.41	1.0	20	0	87.0	65 - 141				
Vinyl chloride	18.05	1.0	20	0	90.2	58 - 137				
Surr: 1,2-Dichloroethane-d4	*53.69*	*1.0*	*50*	*0*	*107*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*48.81*	*1.0*	*50*	*0*	*97.6*	*85 - 114*				
Surr: Dibromofluoromethane	*51.33*	*1.0*	*50*	*0*	*103*	*80 - 119*				

ALS Houston, US Date: 28-May-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 37 May 2021
WorkOrder: HS21050697

QC BATCH REPORT

Batch ID: R384028 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-210519** Units: **ug/L** Analysis Date: **19-May-2021 12:17**
Client ID: Run ID: **VOA6_384028** SeqNo: **6101731** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*49.67*	*1.0*	*50*	*0*	*99.3*	*89 - 112*				

ALS Houston, US Date: 28-May-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 37 May 2021
WorkOrder: HS21050697

QC BATCH REPORT

Batch ID: R384028 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS21050697-03MS** Units: **ug/L** Analysis Date: **19-May-2021 15:26**
Client ID: **35BWW08_210513** Run ID: **VOA6_384028** SeqNo: **6101739** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	18.95	1.0	20	0	94.8	78 - 124				
1,1,1-Trichloroethane	19.93	1.0	20	0	99.7	74 - 131				
1,1,2,2-Tetrachloroethane	18.58	1.0	20	0	92.9	71 - 121				
1,1,2-Trichlor-1,2,2-trifluoroethane	20.07	1.0	20	0	100	70 - 136				
1,1,2-Trichloroethane	19.4	1.0	20	0	97.0	80 - 119				
1,1-Dichloroethane	16.89	1.0	20	0	84.4	77 - 125				
1,1-Dichloroethene	18.15	1.0	20	0	90.7	71 - 131				
1,1-Dichloropropene	20.37	1.0	20	0	102	78 - 125				
1,2,3-Trichlorobenzene	14.55	1.0	20	0	72.8	69 - 129				
1,2,3-Trichloropropane	18.07	1.0	20	0	90.3	73 - 122				
1,2,4-Trichlorobenzene	16.04	1.0	20	0	80.2	69 - 130				
1,2,4-Trimethylbenzene	19.74	1.0	20	0	98.7	76 - 124				
1,2-Dibromo-3-chloropropane	17.01	1.0	20	0	85.0	62 - 128				
1,2-Dibromoethane	19.52	1.0	20	0	97.6	77 - 121				
1,2-Dichlorobenzene	17.94	1.0	20	0	89.7	80 - 119				
1,2-Dichloroethane	19.59	1.0	20	0	98.0	73 - 128				
1,2-Dichloropropane	19.43	1.0	20	0	97.1	78 - 122				
1,3,5-Trimethylbenzene	20.93	1.0	20	0	105	75 - 124				
1,3-Dichlorobenzene	19.55	1.0	20	0	97.7	80 - 119				
1,3-Dichloropropane	19.34	1.0	20	0	96.7	80 - 119				
1,4-Dichlorobenzene	19.84	1.0	20	0	99.2	79 - 118				
2,2-Dichloropropane	18.59	1.0	20	0	93.0	60 - 139				
2-Butanone	28.63	2.0	40	0	71.6	56 - 143				
2-Chlorotoluene	20.11	1.0	20	0	101	79 - 122				
2-Hexanone	34.48	2.0	40	0	86.2	57 - 139				
4-Chlorotoluene	20.43	1.0	20	0	102	78 - 122				
4-Isopropyltoluene	20.56	1.0	20	0	103	77 - 127				
4-Methyl-2-pentanone	34.5	2.0	40	0	86.2	67 - 130				
Acetone	31.18	2.0	40	0	77.9	39 - 160				
Benzene	19.77	1.0	20	0	98.9	79 - 120				
Bromobenzene	20.2	1.0	20	0	101	80 - 120				
Bromochloromethane	17.78	1.0	20	0	88.9	78 - 123				
Bromodichloromethane	18.85	1.0	20	0	94.3	79 - 125				
Bromoform	17.83	1.0	20	0	89.1	66 - 130				

ALS Houston, US Date: 28-May-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 37 May 2021
WorkOrder: HS21050697

QC BATCH REPORT

Batch ID: R384028 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS21050697-03MS** Units: **ug/L** Analysis Date: **19-May-2021 15:26**
Client ID: **35BWW08_210513** Run ID: **VOA6_384028** SeqNo: **6101739** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromomethane	21.02	1.0	20	0	105	53 - 141				
Carbon disulfide	38.22	2.0	40	0	95.6	64 - 133				
Carbon tetrachloride	20.23	1.0	20	0	101	72 - 136				
Chlorobenzene	19.58	1.0	20	0	97.9	82 - 118				
Chloroethane	20.69	1.0	20	0	103	60 - 138				
Chloroform	17.66	1.0	20	0	88.3	79 - 124				
Chloromethane	18.62	1.0	20	0	93.1	50 - 139				
cis-1,2-Dichloroethene	18.16	1.0	20	0	90.8	78 - 123				
cis-1,3-Dichloropropene	19.14	1.0	20	0	95.7	75 - 124				
Dibromochloromethane	18.98	1.0	20	0	94.9	74 - 126				
Dibromomethane	18.76	1.0	20	0	93.8	79 - 123				
Dichlorodifluoromethane	17.1	1.0	20	0	85.5	32 - 152				
Ethylbenzene	21.01	1.0	20	0	105	79 - 121				
Hexachlorobutadiene	16.88	1.0	20	0	84.4	66 - 134				
Isopropylbenzene	20.99	1.0	20	0	105	72 - 131				
m,p-Xylene	40.81	2.0	40	0	102	80 - 121				
Methylene chloride	17.48	2.0	20	0	87.4	74 - 124				
Naphthalene	14.46	1.0	20	0	72.3	61 - 128				
n-Butylbenzene	19	1.0	20	0	95.0	75 - 128				
n-Propylbenzene	21.58	1.0	20	0	108	76 - 126				
o-Xylene	20.08	1.0	20	0	100	78 - 122				
sec-Butylbenzene	20.09	1.0	20	0	100	77 - 126				
Styrene	18.63	1.0	20	0	93.2	78 - 123				
tert-Butylbenzene	19.52	1.0	20	0	97.6	78 - 124				
Tetrachloroethene	23.08	1.0	20	0	115	74 - 129				
Toluene	20.9	1.0	20	0	104	80 - 121				
trans-1,2-Dichloroethene	18.5	1.0	20	0	92.5	75 - 124				
trans-1,3-Dichloropropene	19.2	1.0	20	0	96.0	73 - 127				
Trichloroethene	20.49	1.0	20	0	102	79 - 123				
Trichlorofluoromethane	19.54	1.0	20	0	97.7	65 - 141				
Vinyl chloride	18.16	1.0	20	0	90.8	58 - 137				
Surr: 1,2-Dichloroethane-d4	*49.09*	*1.0*	*50*	*0*	*98.2*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*48.87*	*1.0*	*50*	*0*	*97.7*	*85 - 114*				
Surr: Dibromofluoromethane	*47.9*	*1.0*	*50*	*0*	*95.8*	*80 - 119*				

ALS Houston, US Date: 28-May-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 37 May 2021
WorkOrder: HS21050697

QC BATCH REPORT

Batch ID: R384028 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS21050697-03MS** Units: **ug/L** Analysis Date: **19-May-2021 15:26**
Client ID: **35BWW08_210513** Run ID: **VOA6_384028** SeqNo: **6101739** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*53.03*	*1.0*	*50*	*0*	*106*	*89 - 112*				

ALS Houston, US Date: 28-May-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 37 May 2021
WorkOrder: HS21050697

QC BATCH REPORT

Batch ID: R384028 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS21050697-03MSD** Units: **ug/L** Analysis Date: **19-May-2021 15:48**
Client ID: **35BWW08_210513** Run ID: **VOA6_384028** SeqNo: **6101740** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	18.6	1.0	20	0	93.0	78 - 124	18.95	1.88	20	
1,1,1-Trichloroethane	19.3	1.0	20	0	96.5	74 - 131	19.93	3.25	20	
1,1,2,2-Tetrachloroethane	18.25	1.0	20	0	91.3	71 - 121	18.58	1.79	20	
1,1,2-Trichlor-1,2,2-trifluoroethane	19.75	1.0	20	0	98.8	70 - 136	20.07	1.62	20	
1,1,2-Trichloroethane	18.57	1.0	20	0	92.8	80 - 119	19.4	4.42	20	
1,1-Dichloroethane	16.21	1.0	20	0	81.0	77 - 125	16.89	4.11	20	
1,1-Dichloroethene	17.4	1.0	20	0	87.0	71 - 131	18.15	4.23	20	
1,1-Dichloropropene	19.31	1.0	20	0	96.6	78 - 125	20.37	5.35	20	
1,2,3-Trichlorobenzene	15.66	1.0	20	0	78.3	69 - 129	14.55	7.36	20	
1,2,3-Trichloropropane	17.99	1.0	20	0	89.9	73 - 122	18.07	0.449	20	
1,2,4-Trichlorobenzene	16.42	1.0	20	0	82.1	69 - 130	16.04	2.35	20	
1,2,4-Trimethylbenzene	18.86	1.0	20	0	94.3	76 - 124	19.74	4.58	20	
1,2-Dibromo-3-chloropropane	16.72	1.0	20	0	83.6	62 - 128	17.01	1.71	20	
1,2-Dibromoethane	19.59	1.0	20	0	97.9	77 - 121	19.52	0.344	20	
1,2-Dichlorobenzene	17.83	1.0	20	0	89.2	80 - 119	17.94	0.597	20	
1,2-Dichloroethane	19.49	1.0	20	0	97.5	73 - 128	19.59	0.5	20	
1,2-Dichloropropane	18.29	1.0	20	0	91.5	78 - 122	19.43	6	20	
1,3,5-Trimethylbenzene	19.5	1.0	20	0	97.5	75 - 124	20.93	7.09	20	
1,3-Dichlorobenzene	19.14	1.0	20	0	95.7	80 - 119	19.55	2.1	20	
1,3-Dichloropropane	18.61	1.0	20	0	93.0	80 - 119	19.34	3.87	20	
1,4-Dichlorobenzene	19.37	1.0	20	0	96.9	79 - 118	19.84	2.41	20	
2,2-Dichloropropane	18.36	1.0	20	0	91.8	60 - 139	18.59	1.25	20	
2-Butanone	28.18	2.0	40	0	70.5	56 - 143	28.63	1.55	20	
2-Chlorotoluene	18.78	1.0	20	0	93.9	79 - 122	20.11	6.86	20	
2-Hexanone	33.97	2.0	40	0	84.9	57 - 139	34.48	1.51	20	
4-Chlorotoluene	18.77	1.0	20	0	93.9	78 - 122	20.43	8.43	20	
4-Isopropyltoluene	19.17	1.0	20	0	95.9	77 - 127	20.56	6.96	20	
4-Methyl-2-pentanone	35	2.0	40	0	87.5	67 - 130	34.5	1.44	20	
Acetone	30.91	2.0	40	0	77.3	39 - 160	31.18	0.87	20	
Benzene	19.13	1.0	20	0	95.6	79 - 120	19.77	3.32	20	
Bromobenzene	18.87	1.0	20	0	94.3	80 - 120	20.2	6.84	20	
Bromochloromethane	17.85	1.0	20	0	89.3	78 - 123	17.78	0.383	20	
Bromodichloromethane	18.41	1.0	20	0	92.0	79 - 125	18.85	2.39	20	
Bromoform	17.07	1.0	20	0	85.4	66 - 130	17.83	4.33	20	